

Thirty-Ninth Annual Report
OF THE
Provincial Board of Health
OF
Ontario, Canada

FOR THE YEAR

1920

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO

Printed and Published by Clarkson W. James, Printer to the King's Most Excellent Majesty

1921

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THE RYERSON PRESS.

To His Honour, Lionel H. Clarke, Esq., etc., etc., etc.

Lieutenant-Governor of the Province of Ontario

MAY IT PLEASE YOUR HONOUR:

I herewith beg to present for your consideration the Thirty-Ninth Annual Report of the Provincial Board of Health, for the year 1920.

Respectfully submitted,

W. R. ROLLO,
Minister of Labour and Health.

Toronto, February 9th, 1921



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To the Honorable Walter R. Rollo, Minister of Labour and Health.

Sir,—

I have the honour to submit for your approval the Thirty-Ninth Report of the Provincial Board of Health, made in conformity with and under the provisions of the Public Health Act, for the year 1920.

I have the honour to be, Sir,

Your obedient servant,

JOHN W. S. McCULLOUGH,

Chief Officer of Health.

Toronto, February 9th, 1921.

ORGANIZATION

MINISTER OF LABOR AND HEALTH
THE HONORABLE WALTER R. ROLLO

The Provincial Board of Health

Adam H. Wright, B.A., M.D., M.R.C.S., Eng., Chairman.....	Toronto
Henry R. Casgrain, M.D., C.M.....	Windsor
Thos. E. Kaiser, M.D., C.M.....	Oshawa
W. H. Howey, M.D., C.M.,	Sudbury
A S. McElroy, M.D., C.M.....	Ottawa
James Roberts, M.D., C.M., M.O.H.....	Hamilton
John W. S. McCullough, M.D., C.M., D.P.H.....	Toronto

Executive

John W. S. McCullough, M.D., C.M., D.P.H.....	Chief Officer of Health
Robert W. Bell, M.D., C.M.....	Provincial Inspector of Health

District Officers of Health

District:	No. 1. Thos. J. McNally, M.D., C.M., D.P.H.....	London
	No. 2. R. E. Wodehouse, M.D., O.B.E.....	Toronto
	No. 3. Daniel A. McClenahan, M.D., C.M., D.P.H.....	Hamilton
	No. 4. George Clinton, M.D., C.M.....	Belleville
	No. 5. Paul J. Moloney, M.D., C.M.....	Ottawa
	No. 6. W. Egerton George, M.D.....	North Bay
	No. 7. G. L. Sparks, M.D.....	Fort William

Sanitary Inspectors

Alex. White James Taylor John Richardson D. S. McKee Wm. C. Millar

Division of Sanitary Engineering

F. A. Dallyn, C. E.....	Provincial Sanitary Engineer
A. V. De Laporte, B.A.Sc.....	Chemist in Charge of Experimental Station
A. E. Berry, M.A.Sc.....	Assistant Engineer

Division of Laboratories

H. M. Lancaster, B.A.Sc.....	Director
Charles M. Anderson, M.D., C.M., C.P.H.....	Bacteriologist
A. H. Bonham, B.A.Sc.....	Chemist

Branches

Hibbert W. Hill, M.D., D.P.H., Director.....	London
James Miller, M.D., F.R.C.S. (Edin.), Director.....	Kingston
N. O. Thomas, B.A., M.B., Director.....	Fort William
N. F. W. Graham, M.B., Director.....	Sault Ste. Marie
J. S. Douglas, M.B., Director.....	North Bay

Division of Venereal Diseases

R. R. McClenahan, B.A., M.B., D.P.H.....	Director
B. L. Guyatt, M.B.....	Clinical Specialist
J. W. Hunt, M.B., L.R.C.P., M.R.C.S.....	Clinical Specialist
Edna L. Moore, A.R.R.C.....	Director

Division of Industrial Hygiene

J. G. Cunningham, B.A., M.B., D.P.H.....	Director
R. M. Hutton, B.A. (Oxon.).....	Literary Research
N. C. Sharpe, B.A., M.B.....	Clinical Specialist

Division of Public Health Education

J. J. Middleton, M.B., D.P.H.....	Director
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Division of Maternal and Child Welfare and Public Health Nursing

Mary Power, B.A.....	Director
Beryl Knox.....	Associate Director
Marjorie Burgess, B.A.....	Statistician
Wm. J. Bell, M.B.....	Pediatrician

Division of Epidemiology

Consulting Staff

Public Health Administration.....	J. G. Fitzgerald, M.B., F.R.S.C.
Pediatrics.....	Alan Brown, B.A., M.B.
Obstetrics.....	B. P. Watson, M.D., F.R.C.S. (Edin.)

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ANNUAL REPORT

OF THE

Provincial Board of Health for the Province of Ontario

For the Year Ending the 31st of December, 1920

RESUME OF THE TRANSACTIONS OF THE BOARD BY THE CHIEF OFFICER OF HEALTH.

This is the 39th Annual Report of the Provincial Board of Health for the year ending the 31st December, 1920.

During the year there were four regular meetings of the Board, at which all the members were present.

Legislation.

During the 1920 Session of the Legislature the following amendments to the Public Health Act were passed, viz:

Clause (k) of section 2 of The Public Health Act is repealed, and the following substituted therefor:—

- (k) "Owner" shall mean the person for the time being receiving the rent of the land or premises in connection with which the word is used whether on his own account or as agent or trustee of any other person or who would so receive the same if such lands and premises were let.

The Provincial Board of Health, constituted under the provisions of section 3 of The Public Health Act, shall be a body corporate by the name of "The Provincial Board of Health for Ontario."

Subsection 2 of section 25 of The Public Health Act is amended by striking out the words "in any city" in the first line and substituting therefor the words "in a city or in any town, village or police village in which a sewerage system has been established."

Subsection 1 of section 93 of The Public Health Act is amended by adding at the end thereof the words "nor shall anyone bathe or swim in the waters of any such sources of water supply within such area as may be fixed or defined by order of the Provincial Board."

Where any regulation has been made by the Provincial Board of Health with the approval of the Lieutenant-Governor in Council, under the provisions of sec. 118 of The Public Health Act, relating to territory without municipal organization, the regulation may provide for the imposing of penalties for the violation of any regulation made under that section and every such penalty shall be recoverable under The Ontario Summary Convictions Act before a police magistrate or two justices of the peace.

The Venereal Diseases Prevention Act was amended as follows:—

Section 4 of The Venereal Diseases Prevention Act is amended by adding the following subsection:

“Where the person infected with venereal disease is a child under the age of sixteen years, all notices, directions or orders required or authorized by this Act, or by the Regulations to be given in respect of such person shall be given to the father or mother or in case of the death, absence, illness or inability of the father and mother then to the person having, for the time being custody of the child, and it shall be the duty of such father or mother or other person to see that such child complies in every respect with every such notice and with any order or direction made in respect of such child by the Medical Officer of Health, and in default the father or mother or other person as the case may be shall be liable to the penalties provided by this Act or by the Regulations for non-compliance with such notice, direction or order unless on any prosecution in that behalf such person proves that he did everything in his power to cause such child to comply with the same.”

Regulations.

The following Regulations for the Cleansing, Renovation and Disinfection of premises were passed by Order in Council under the authority of the Public Health Act on March 19th, 1920, and published in the Ontario Gazette on the 26th of the same month.

**REGULATIONS FOR THE CLEANSING, RENOVATION AND
DISINFECTION OF PREMISES DURING AND AFTER
COMMUNICABLE DISEASES**

The Public Health Act in reference to cleansing, renovation and disinfection, reads as follows:—

SECTION 29.—(1) Where a Medical Officer of Health is of opinion that the disinfecting of any house or part thereof, or of any articles therein likely to retain infection, would tend to prevent or check any communicable disease, he shall through the Sanitary Inspector or otherwise, at the cost and charge of the municipality, disinfect such house or part thereof and the articles therein contained.

(2) The disinfecting, renovating and cleansing of houses and premises shall be carried on in accordance with the Regulations.

SECTION 62.—(1) Where there is any reason to suspect that any person suffering from a communicable disease, to which this section is by the Regulations made applicable, is in or upon any railway car, street railway car, steamboat, vessel, stage, or other conveyance, the Medical Officer of Health or Sanitary Inspector of the municipality, or any member of the Local Board, may enter such conveyance and cause such person to be removed therefrom, and may detain the conveyance until it is properly disinfected; or such officer or member may, if he thinks fit, remain on, or in, or re-enter and remain on or in such conveyance, with any assistance he may require, for the purpose of disinfecting it; and his authority shall continue in respect of such person and conveyance notwithstanding that the conveyance is taken into another municipality.

(2) The expense incurred for medical attendance, care, nursing, maintenance and all costs for disinfection shall be paid by the owner of the conveyance in which such person is found.

(3) Any legally qualified medical practitioner or Sanitary Inspector authorized by the Provincial Board shall have the same authority as a Medical Officer of Health under this section.

SECTION 63.—Where any communicable disease is reported or discovered in a dwelling house or out-house occupied as a dwelling, and such house or out-house is in a filthy and neglected state, the Medical Officer of Health may, at the expense of the Corporation of the Municipality, compel the inhabitants of such dwelling house or out-house to remove therefrom, and may place them in sheds or tents, or other proper shelter, in some more suitable situation, until measures can be taken under the direction and at the expense of the Municipal Corporation, for the immediate cleansing, ventilation, purification and disinfection of such dwelling house or out-house.

SECTION 64.—No person recovering from any communicable disease, to which this section is by the Regulations made applicable, and no nurse who has been in attendance on any such person, shall leave the premises or expose himself in any public place, street, shop, in or public conveyance until he has received from the Medical Officer of Health a certificate that in his opinion such person or nurse has taken such precautions as to his person, clothing and all other things which he proposes to bring from the premises as are necessary to insure the immunity from infection of other persons with whom such person or nurse may come in contact.

SECTION 65.—Every such person and nurse shall adopt for the disinfection and disposal of excreta, and for the disinfection of utensils, bedding, clothing and other things which have been exposed to infection, such measures as may be prescribed by the Regulations or by the Medical Officer of Health.

SECTION 68.—No person shall give, lend, transmit, sell or expose any bedding, clothing, or other article likely to convey any communicable disease, without having first taken such precautions as the Medical Officer of Health may direct for removing all danger of communicating such disease to others.

SECTION 69.—No person shall let or hire, or permit to be occupied, any house or room in a house in which any communicable disease has recently existed without having caused the house and premises used in connection therewith to be disinfected to the satisfaction of the Medical Officer of Health, and, for the purposes of this section, the keeper of an inn or house for the reception of lodgers shall be deemed to let for hire part of a house to any person admitted as a guest into such inn or house.

SECTION 70.—No person letting for hire, or showing for the purpose of letting for hire any house or part of a house, on being questioned by any person, negotiating for the hire of such house, or part of a house, as to the fact of there previously having been therein any person, animal or thing suffering from or liable to be infected by any communicable disease, shall knowingly make a false answer to such question.

SECTION 71.—(1) No common carrier shall knowingly accept for transportation or carry within Ontario, except under and subject to the Regulations, any person suffering from any communicable disease, to which this section is by the Regulations made applicable, or any infected article or articles of clothing, bedding or other property whatsoever.

(2) No carrier shall knowingly accept for transportation or carry within Ontario the body of any person who has died of any communicable disease, except under and subject to the Regulations.

(3) Every person contravening the provisions of subsection 1 or of subsection 2 shall incur a penalty of \$100.

Regulation 1

Cleansing.—Adequate *cleansing* of rooms, furniture and other contents of rooms occupied by the sick person, when deemed necessary by the medical officer of health or as directed by the Act or Regulations shall be carried out immediately following the recovery, death or removal of a person affected with a communicable disease. Such cleansing shall be performed by and at the *expense of the occupant* of the premises upon the order and under the direction of the medical officer of health or of some person appointed by him.

Regulation 2

Renovation.—Adequate *renovation* of premises when deemed necessary by the medical officer of health or as directed by the Act or Regulations shall be immediately carried out following the recovery, death or removal of a person affected with a communicable disease. Such renovation shall be performed by and at the *expense of the owner* of the said premises upon the order and under the direction of the medical officer of health or of some person appointed by him.

Regulation 3

Disinfection Including Fumigation.—Adequate disinfection of premises when deemed necessary by the medical officer of health or as directed by the Act or Regulations shall be carried out immediately following the recovery, death or removal of a person affected with a communicable disease. Such disinfection shall be performed by or under the direction of the medical officer of health in accordance with the Regulations and at the *expense of the municipality*.

Regulation 4

Methods and precautions in cleansing, renovation and disinfection.

- (a) *Cleansing.*—Cleansing shall be secured by the thorough removal of dust and other contaminating material in such a way as to prevent the entry thereof to other rooms or dwellings; washing of the floors and woodwork with soap and hot water; scouring, airing, exposure to sunlight as may be deemed necessary by the medical officer of health or as laid down in the Regulations.
- (b) Renovation of rooms shall be secured by removing old paper from walls and ceilings, re-painting, re-kalsomining or re-papering of walls, ceilings and woodwork as may be deemed necessary by the medical officer of health.
- (c) Disinfection of rooms shall be secured by the use of such disinfecting agents in such quantities and in such manner and of such fumigation or sterilizing procedures as may be ordered by the medical officer of health or as laid down in the Regulations.

Regulation 5

Destruction of furniture, clothing and other articles.—Furniture, bedding, clothing, carpets, rugs and other articles which may have been contaminated with infective material from any case of communicable disease and which are of such a nature, or in such condition that in the opinion of the medical officer of health they cannot be properly cleaned, disinfected or sterilized, shall, upon his order, be destroyed in the manner designated by him.

Regulation 6

Every person upon convalescence or recovery from any communicable disease and every nurse and every person in attendance on such case throughout the course of the disease as well as at its close shall suitably cleanse and when necessary disinfect their persons in such manner as may be ordered by the medical officer of health or as laid down in the Regulations.

Regulation 7

When an order requiring the cleansing, renovation or disinfection of articles or premises is not forthwith carried out the medical officer of health shall cause the premises to be placarded with a notice in the following form, viz.:

NOTICE.

These premises have been occupied by a person affected with They must not again be occupied until the orders for cleansing, renovation or disinfection have been complied with. This notice must not be removed under a penalty of \$100.

Place and date.

.....M.D.
M.O.H.

Fumigation and Terminal Disinfection.—These, while additional precautions against the spread of disease, are necessary only in cases where cleanliness and disinfection have been neglected during the progress of a case of communicable disease.

Fumigation should not be carried out unless the medical officer of health deems it advisable. In such case it must be thoroughly done under the supervision of the medical officer of health or by some person whom he knows to be capable of properly carrying it out. Because it is essentially for the benefit of the community its expense is borne by the municipality except as provided under Section 62 of the Public Health Act.

Definitions

Disinfection.—Means the destruction of the germs or micro-organisms causing disease.

Sterilization.—Means more than disinfection. It is a much more effective process inasmuch as it not only destroys all the germs of disease killed by disinfection but it also destroys such spore-bearing micro-organisms as those of anthrax, tetanus, malignant oedema and the gas bacillus group of germs.

Antiseptics.—Antiseptics are substances which prevent decomposition and decay. They do not necessarily destroy the germs which produce putrefaction and fermentation but they delay their action. For example, a weak solution of bichloride of mercury (1 in 300,000) will sometimes prevent the fermentation of anthrax spores while on the other hand it requires a 1 in 1,000 solution to destroy them. Saturated solution of salt or sugar will, as is well known, preserve meats, fruits and vegetables but have little power to destroy micro-organisms.

Asepsis.—Asepsis means freedom from or absence of living disease germs. It is practically a condition of sterilization. Surgical asepsis is obtained through physical cleanliness.

Disinfectants or Germicides.—These are agents which destroy germs.

Deodorants.—Are substances which destroy unpleasant odors. Charcoal, for example, will absorb odors and formalin will both disinfect and deodorize. Bichloride of mercury will destroy germs but has no effect on odors. Many deodorants simply substitute one form of smell for another.

Fumigation.—Fumigation consists in liberating fumes or gases with the object of destroying germs, vermin, insects, rats or mice and other small animals acting as carriers of infection. The chief articles used in fumigation are formaldehyde and sulphur dioxide. Formaldehyde is a good germicide but has little effect on killing insects. Fumigation cannot take the place of disinfection as gases act only on the surface of objects and do not penetrate fabrics, books or masses of sputum. Disinfection and fumigation both have their proper place in public health work.

Nature's Disinfecting Agencies.—These are Dilution, Sunlight, Dryness, Time and Symbiosis or the destructive effects of germs upon one another. The combination of dryness and sunlight is quite as good as much of the fumigation ordinarily carried out.

Dryness, Sunlight and Cleanliness are the keynotes of *Sanitation*.

Most disease producing germs do not grow and multiply outside the body. Fortunately for the human race, most germs soon die when wafted into the air, deposited on surfaces, conveyed in water or placed in the soil. It generally requires a number of germs to produce infection. For example, it takes ten tubercle bacilli to produce tuberculosis in a guinea-pig. Dilution or thinning out of the number of germs, cleanliness, dryness and sunlight protect us greatly against communicable diseases. Close personal association with persons ill of these diseases is likely to cause infection.

Cleanliness.—Cleanliness is the basis of all sanitary measures. Dry dusting and sweeping stir up dust and infection which settle down again on the same or other surfaces. Cleansing with soap and water serves to remove disease germs and besides destroys the

organic matter in which bacteria may find favorable conditions to live. In handling communicable diseases and indeed in our ordinary affairs of life *two important points* should be remembered. They are:

(1) *To wash the hands with soap and water after using the toilet or handling patients.*

(2) *To keep the fingers away from the mouth and nose.*

Surfaces used by the public such as woodwork, seats, floors, desks, door knobs and the like in schools, factories, shops, public conveyances and places of assembly, should, when possible, be frequently scrubbed with hot soap suds and strong solutions of washing-soda. The same procedure applies to the seats of water-closets, privies, wash-basins and other objects used in common. In protecting the public health, cleanliness is truly next to godliness.

Symbiosis.—In the processes of putrefaction and fermentation which are carried on by germs, there is a fierce struggle for existence. The saprophytic germs causing putrefaction are hardier than those causing disease and for the most part kill them. The fact that infected carcasses, sewage and putrid organic matter generally purify themselves by the very processes that destroy them, is a fortunate provision of nature.

Where and When to Disinfect.—It is more important to prevent infection than to destroy it after it has been disseminated. The place to apply disinfection is at the seat of origin. Man is the fountain-head of most infections, hence the most effective place to apply disinfectants is at the bedsides. The *excretions*, especially those from the *mouth, nose and bowels* as well as discharges from eruptions and wounds are the ones which need scrupulous attention. If the discharges in cases of cholera, dysentery, typhoid fever or plague are disinfected at the bedside, there is little need of disinfecting the sick room. If the discharges receive little or no attention, disinfection of the room and clothing is essential.

Much of the disinfection and fumigation done is ineffective because improperly carried out.

The Ideal Disinfectant.—The ideal disinfectant must possess high germicidal power. It must not be rendered ineffective in the presence of organic matter; it must not readily deteriorate; it must be soluble and readily mixed with water; it must be harmless to man and the higher animals; it should have the power of penetration, it should not corrode metals, bleach, rot or stain fabrics and it *must be reasonable in price.*

Terminal Disinfection.—This means disinfection when the patient ill of a communicable disease is recovered, removed or dead.

The principal objects that need disinfection are the discharges from the body, towels, bedding, toys, handkerchiefs and fabrics, food, dishes and table-ware that have been mouthed, the hands of physician, nurse, mother and others who come in contact with the infection.

Fomites such as letters, books, woollen garments, umbrellas, curtains and furniture are not likely to carry disease but it is a wise precaution to carry out *Disinfection*, not necessarily *Fumigation*, after every case of communicable disease.

The greater the care exercised during the progress of the disease, the less the need of terminal disinfection.

Physical Agents of Disinfection.

Sunlight.—Sunlight is an active germ killer. Its direct rays kill spores as well as bacteria. Rooms and objects may be sunned and aired with advantage after disinfection. The value of sunlight in destroying germs of disease varies with its brightness and under conditions of moisture, temperature and transparency of the media. Plague bacilli and cholera vibrio are more easily destroyed than the tubercle bacilli. The spores of anthrax require about 30 hours' exposure to the sun while the anthrax bacilli are killed in one or two hours.

Burning.—Garbage and refuse of no value, sputum, infected dressings and discharges of wounds should be burned. Except under very bad conditions it is rarely necessary to destroy books, clothing or other articles which may be readily disinfected by other effective means.

Dry Heat.—A temperature of 150 deg. C. (302 deg. F.) continued for one hour will kill all forms of life, even the most resistant spores. Glassware in laboratories is sterilized in this manner. A hot-air sterilizer is used for this purpose. This form of disinfection is not so useful as moist heat as it lacks the power of penetration and will destroy fabrics. Most materials will bear a temperature of 110 deg. C. (230 deg. F.) but will scorch if a higher temperature is used. In the absence of a proper sterilizer the ordinary household oven will give satisfactory results. The oven should be heated sufficiently to brown cotton and the objects to be disinfected should be exposed to its heat for one hour.

Boiling.—Boiling is a valuable disinfectant. The water should be brought to a temperature of 100 deg. C. (212 deg. F.) and continued for one hour. The germs of most diseases will die at a much lower heat than the boiling temperature of water. For example, a temperature of 60 deg. C. (140 deg. F.) will destroy the micro-organisms of cholera, typhoid, dysentery, plague, tuberculosis, pneumonia, erysipelas and practically all non-spore-bearing bacteria. But even boiling temperature will not suffice to kill the spores of anthrax and tetanus.

Boiling is applicable to the disinfection of bedding, body linen, towels and fabrics of many kinds, also kitchen articles and tableware, bed-pans, *cuspidors*, *urinals* and a great variety of objects.

Surfaces such as floors, walls, beds, metal work, etc., may be effectively disinfected by washing with boiling water. The addition of bichloride of mercury, carbolic acid or cresol or of lye, borax, or a strong alkaline soap increases its effectiveness. In using boiling water for the disinfection of cutting instruments, the addition of one per cent. of carbonate of soda will prevent rusting and injury to the cutting edge.

Steam.—Steam is one of the best disinfecting agents we possess. It not only disinfects, it also sterilizes. Bacteria are killed instantly and most spores in a few minutes. Streaming steam for half an hour is sufficient. Steam under pressure of 15 lbs. to the square inch has a temperature of about 120 deg. C. (248 deg. F.) and will sterilize in 20 minutes.

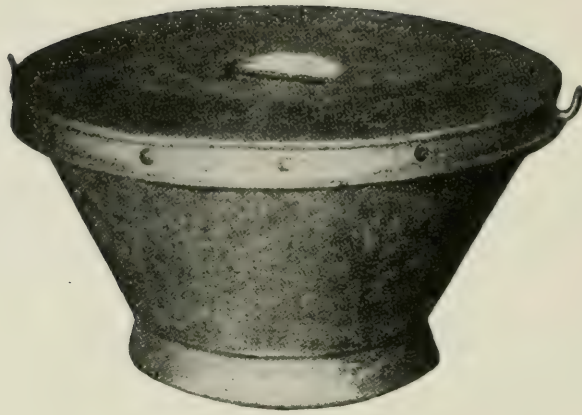


Fig. 1.
Formaldehyde-permanganate Disinfector. Closed.



Fig. 2.
Formaldehyde-permanganate Disinfector. Open.

Steam may be used for the disinfection of bedding, clothing, fabrics of all kinds but it will shrink woollens and injure silks, leather, fur, skins, rubber goods, oilcloth, etc. An autoclave is the best apparatus for the purpose but the use of a cheap boiler and an air-tight chamber will give good results.

Chemical Agents of Disinfection.

Gaseous Disinfectants, Fumigation.—The best gas for fumigation is *Formaldehyde*. It is not poisonous, does not injure fabrics, colors, metals, pictures or other objects of value.

Sulphur Dioxide.—Destroys fabrics, colors and metals. It is very poisonous to all forms of animal life which makes it valuable against insects and animal-borne diseases. It has no equal for the fumigation of holds of ships, cellars, sewers, stables and other rough structures infested with vermin. Chlorine gas and hydrocyanic acid gas are too poisonous to be used with safety.

In fumigation, haphazard work will not give results. It is of little value to burn a few formalin candles in a room. Such types of fumigation will give only a *false security*. At best, fumigation with any gas will disinfect the surface of objects only. Gases lack the power of penetration.

Preparation of the Room.—(1) All cracks and crevices must be closed by plugging them or pasting paper over them.

(2) Registers, flues, fireplaces and ventilators must be stopped up.

(3) Beds, bureaus, and cupboards and other furniture should be moved away from the walls. Closets, boxes and drawers should be opened so that the gas may gain ready access to all surfaces. Gases do not penetrate clothing, etc.

(4) An excess of gas should be used, for no matter how careful we are a good deal escapes.

(5) The room should be heated to 60 deg. F. and plenty of moisture secured by boiling water in a large open receptacle in the room.

Disinfection with Formaldehyde Gas.—This is best accomplished by the use of Potassium Permanganate and Formalin, the latter being the watery solution which we purchase at the drug store and which contains about 40 per cent. of formaldehyde gas. For each 1,000 feet of space, we use 16 oz. of formalin to 7 oz. of potassium permanganate. The permanganate is first placed in a galvanized iron vessel (see fig. 1) large enough to prevent its splashing over on the floor, which it might set on fire. Everything being ready,

the formaldehyde is added to the permanganate. Very active oxidation takes place with the formation of formic acid and heat. It is the heat that liberates the formaldehyde gas.

The operator should leave the room at once, the margins of the door and the keyhole being plugged with cotton.

The room is left sealed up for at least 6 hours. It may then have the doors and windows opened up so as to be thoroughly aired.

Sulphur Dioxide (SO_2).—Sulphur dioxide is not a very efficient germicide but is exceedingly poisonous to diseases spread by rats, mice, flies, fleas, and mosquitoes. Its action is upon the surface only. *It is of no value without plenty of moisture.* It does not kill spores.

The Pot Method.—An iron pot should be placed in a tub containing water. In the pot for every 1,000 c. feet of space are placed 5 lbs. of flowers of sulphur or sulphur sticks ground up. Alcohol is liberally poured over the sulphur and the room being prepared as in the formaldehyde method, the alcohol is lighted and the room sealed up. The room should be kept closed for about 24 hours.

Liquid Disinfectants.—1. Strong carbolic acid solution (5 per cent.). Add one pint or a pound of either the crude or purified liquid carbolic acid to two and one-half gallons of hot water and stir frequently until no red or colorless droplets remain in the bottom of the mixture.

2. Carbolic acid solution (2.5 per cent.). To one part of carbolic acid solution No. 1, add an equal amount of water.

3. Strong bichloride of mercury (corrosive sublimate) solution (1-500). Dissolve one ounce of bichloride of mercury in four gallons of hot water. A little blueing should be added to color the solution and indicate its poisonous character. Bichloride of mercury solutions must be made in glass, enameled or earthenware vessels as they corrode metals.

4. Bichloride of mercury (corrosive sublimate) solution (1-1,000). Dilute one part of bichloride of mercury solution No. 1 (paragraph 3 above) with an equal quantity of water.

5. Alcohol solution. Four parts of 95 per cent. alcohol and one part of water.

6. Chloride of lime solution (10 per cent.). Prepare by adding $\frac{1}{2}$ lb. of good chloride of lime to one gallon of water and mixing thoroughly. This should be prepared only as needed.

7. Milk of lime. Owing to the importance of using freshly prepared solutions and the favorable effect of the heat produced by slaking upon the efficacy of the disinfection, the following method is recommended:

(a) Add unslaked lime directly to the infective material, suspended in water, in the proportion of one part to eight parts of the material.

(b) When a solution is required the lime should be slaked by mixing one part of lime with four of water and adding one part of this solution to one part of the material to be disinfected; but this solution must be used promptly.

Air-slaked lime will not serve.

Liquor Cresolis Compositus.—Preparation of liquor cresolis compositus. Mix 1 pound green soap with 17 ounces cresol and sufficient water to make 34 ounces of solution. The preparation should be made in wooden bucket or an earthenware jar. For economy this should be purchased in barrel lots by the local board of health. This is a valuable cleanser and disinfectant.

Caution: Poisoning and Antidotes.—Carbolic acid and bichloride of mercury are violent corrosive poisons and great care should be taken to see that disinfectant solutions are kept out of the reach of children. If, by accident, a disinfectant solution is swallowed, a physician should be sent for at once. Do not wait until he arrives, but give the proper antidote as quickly as it can be prepared.

Antidotes for carbolic acid. Olive oil, and castor oil.

Antidotes for bichloride of mercury. Raw eggs, flour paste and milk.

Try to provoke vomiting so as to empty the stomach. For this purpose give mustard and water, or salt and water, or tickle the back of the throat.

The Disinfection of Discharges.

The disinfection of sputum and of discharges from the mouth, throat and nose, and from the eyes and ears.—The communicable diseases in which these discharges are to be regarded as of special significance as the conveyors of infective agents are diphtheria, measles, mumps, chickenpox, whooping cough, tuberculosis, epidemic cerebrospinal meningitis, poliomyelitis, epidemic streptococcus or septic sore throat, scarlet fever and smallpox.

Sputum and other discharges from the mucous membranes are not easy to disinfect because the disease-inciting organisms are apt to be enveloped in mucus, which disinfectants do not readily penetrate. The strong carbolic solution, 5 per cent., is most efficient for this purpose. Sublimate solution is not so effective because in its presence a layer of albuminate of mercury is formed about the micro-organisms, preventing access to them.

Sputum, when in considerable quantity, should be received, if practicable, in paper cups which with their contents may be burned. If this is not practicable it may be received in ordinary cups containing the strong 5 per cent. carbolic solution. When not in large

quantities, sputum and other infective discharges from the mouth, throat and nose, and discharges from the eyes and ears should be received on cheap cloths or soft paper, and promptly burned. If handkerchiefs are used to receive infective discharges they should be immersed in the carbolic solution before the discharges dry. After immersion for one hour in an abundant volume of the solution, handkerchiefs or other contaminated fabrics may be laundered.

The Disinfection of Discharges from the Alimentary Canal and Urinary Tract.—The communicable diseases in which these discharges are especially significant are typhoid fever, and para-typhoid fever, in both of which the urine as well as the intestinal discharges may harbor infective agents' dysentery, and Asiatic cholera. In the latter cases vomited material may also be infective.

In the afore-named diseases the discharges from the bowels, and the urine should be received in bed-pans or other vessels containing a small amount of chloride of lime solution ($\frac{1}{2}$ lb. to a gallon of water). A quantity of chloride of lime solution, equal to twice the volume of the discharge, should at once be added, and fecal lumps broken up and thoroughly mixed. The receptacle with its contents, covered to exclude flies, should stand for at least an hour before being emptied into the water-closet, privy or trench. The trench should be one foot wide, 3 feet deep, 4 feet long, covered with a plank to exclude flies or snow.

After emptying the pans or other vessels which have received such discharges, they should be immersed in a disinfecting solution, and the hands of the attendant should at once be carefully cleansed or disinfected. Neither the disinfection of the discharges nor the cleansing of the hands should be delayed.

Disinfection of Discharges from the Genital Tract.—If copious, these should be collected on dressings of sterile absorbent cloths and burned.

Disinfection of Discharges from Open Wounds and from Ulcerating Surfaces on the Skin.—These discharges also should be collected on dressings of sterile, absorbent cloths and burned.

Disinfection of Clothing, Bed Linen, Towels, Napkins, and Similar Articles which have been Contaminated with Infective Discharges.—Such articles should be soaked in carbolic solution (2½ per cent.) for one hour or longer. Then, after wringing out, they should be boiled for twenty minutes in the soapsuds solution, and laundered as usual.

Outer garments of woollen stuffs, mattresses, pillows and similar articles which it would be a hardship to destroy, should be disinfected by exposure to formaldehyde gas, in a closed room or in special receptacles or chambers designed for this purpose, or, they may be sterilized by steam, when the facilities for such form of disinfection are available.

Disinfection of the Person.—The disinfection of the skin. Simple but thorough cleansing with soap and water is the most important feature in skin disinfection and must suffice for much of the general routine in the care of the patient. But any part of the surface of the body of the patient or of his attendants which has been contaminated with infective discharges should at once be washed with the carbolic solution (2½ per cent.) or with 1 to 1,000 sublimate solution, and then washed with soap and water. Alcohol (75 per cent.) is also a most serviceable disinfectant for the skin and will remove the sensation of numbness induced by carbolic solutions.

A basin of carbolic solution (2½ per cent.) or of sublimate solution 1 to 1,000 as well as soap and water, should always be accessible to a room in which a case of communicable disease is isolated, so that nurses and attendants may quickly rinse and disinfect and wash their hands after attending to the patient.

By the use of rubber gloves much of the discomfort from frequent cleansing and soaking of the hands in disinfectants may be avoided. Rubber gloves are readily disinfected in the strong carbolic solution, 5 per cent., or in the strong bichloride solution 1 to 500; or sterilized by five minutes' boiling. After disinfection or sterilization they should be dried and kept well-powdered.

For hypodermic injection or similar treatment, the site of puncture or erosion, after cleansing with soap and water, may be disinfected with alcohol, or alcohol and ether, or by the application of tincture of iodine.

The disinfection of Mucous Membranes.—Owing to the delicacy of these structures and the inconvenience and risk involved in their injury, it is impracticable to bring disinfectant solutions into sufficiently close contact with micro-organisms which they may harbor in their various recesses and to secure the necessary time of exposure to the solutions, to obtain even approximate disinfection. Here, therefore, as in the case of the skin, it is intelligent cleansing rather than technical disinfection which must be relied on.

Though antiseptics may be used for cleansing purposes, in the mouth, for example, the period of contact between them and the germs is at best too short for the development of their inhibitory effects.

For the cleansing of the mouth, an alcoholic wash or gargle is among the most serviceable of the antiseptic solutions. A conventional formula for such a purpose, made either alkaline or acid as may be desired, is as follows:

ALKALINE SOLUTION.

Sodium bicarbonate	0.5 parts
Glycerine	10 "
Alcohol	30 "
Water	60 "

ACID SOLUTION.

Vinegar	10	parts
Glycerine	10	"
Alcohol	30	"
Water	50	"

Thermometers, when in frequent use in the sick room, should be kept in a 2½ per cent. carbolic solution.

Disinfection of Foods.—Thoroughly cooked foods and drinks which have been boiled for ten minutes are free from all disease germs.

Remnants of food from the sick room should be burned; or, if more convenient, soaked for an hour in 5 per cent. carbolic solution or in milk of lime.

Disinfection of Eating Utensils.—Eating utensils used by a patient affected with a communicable disease, such as knives, forks, spoons, dishes, etc., should be reserved for him and after use should either be boiled for ten minutes in soapsuds, or washed first in 5 per cent. carbolic solution, then in hot soapsuds and rinsed in water.

Disinfection of the Person at the end of the Isolation Period.—If all necessary precautions have been carried out during the isolation period, additional measures of disinfection are unnecessary on release, except in cases of *scarlet fever*, *smallpox* and *chickenpox*. After these diseases the person of the patient and his attendants should be cleansed by washing the entire body and hair with soap and water; brushing the teeth, rinsing the mouth and gargling the throat with an antiseptic solution (see above). There should also be a complete change of underclothing.

An Infectious Disease is a disease which is caused by the entrance into the body and multiplication therein of pathogenic, that is, disease-inciting germs or micro-organisms.

Infection is the act or process of the incitement of an infectious disease. The process of infection marks the interaction between the invaded animal organism and the attacking micro-organism.

An Infective Agent is a living micro-organism, capable under favorable conditions of inciting infectious disease.

Infective agents, under the usual conditions of life, are most often transmitted in the secretions or excretions of those affected by communicable infectious diseases, or of those who, though themselves not affected, harbor pathogenic micro-organisms.

A Communicable Disease is an infectious disease the inciting agents of which may, under usual conditions, be transmitted from those affected with the disease, or from those otherwise harboring these agents, to others with the incitement of the disease in fresh cases as a result.

A "carrier" is an individual who, though not at the time himself affected, harbors in his body, or in his secretions or excretions, micro-organisms which under favoring conditions may incite infectious disease in himself or in others.

The Incubation Period is the interval which elapses between the entrance into the body of infective agents and the manifestation of the symptoms or the development of the lesions which the germs incite.

Epidemic Disease.—A disease may be said to be epidemic when for a limited period it is abnormally prevalent in a community, so as to involve a considerable number of persons.

An Endemic Disease is one which is ordinarily present and prevalent in a locality.

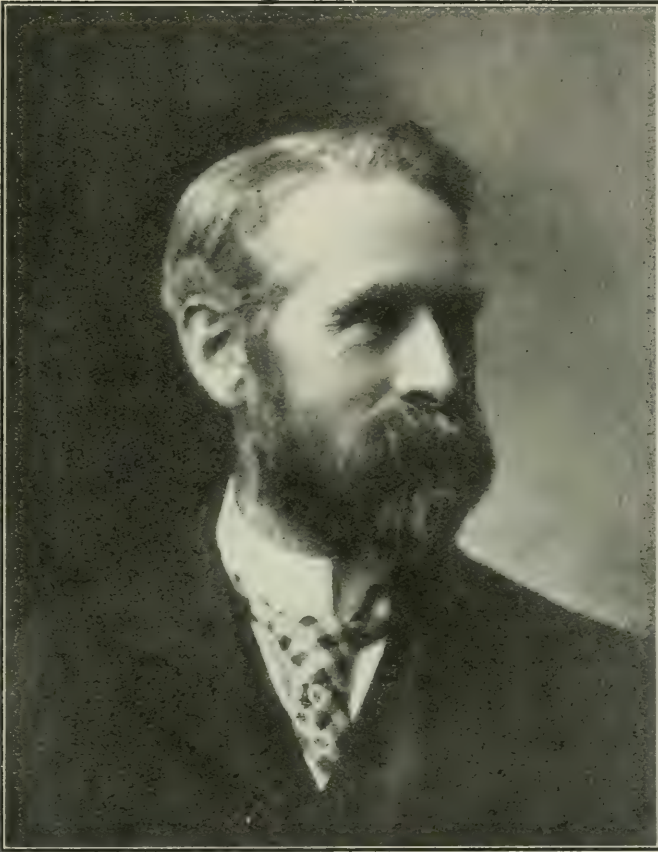
Cultures are growths of micro-organisms, usually carried on under artificial conditions, for the purpose of studying their characters; or, when derived from cases of suspected communicable disease, to identify forms whose nature must be definitely known, in order that the proper treatment and effective safeguarding of the community may be secured.

Exposure to a case of communicable disease means the coming of an individual into such direct relationship to the patient or to materials from his body which presumably contain infective agents, as to render liable the conveyance of the latter, directly or indirectly, from one to the other. Persons so exposed are known as "**Contacts.**"

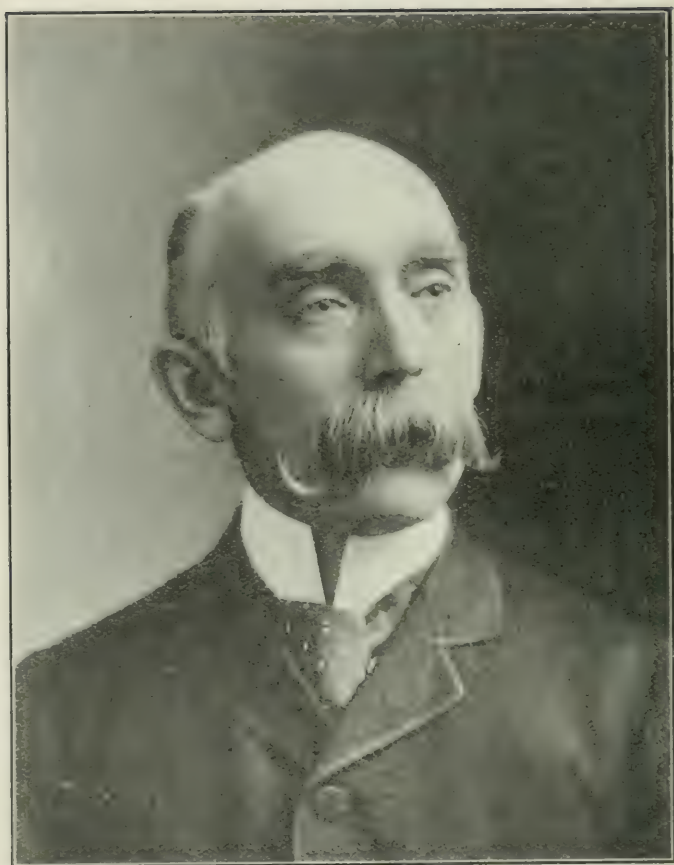
Isolation of a case of communicable disease is the separation of the case from those not concerned with its care or with the protection of the public health, under conditions which so far as possible will prevent the spread and secure the destruction of all infective material coming from the patient. At the termination of the isolation period, such measures of cleansing and disinfection of the person and of the surroundings of the patient and of his attendants should be taken as will safeguard associates and the community against infective material which from some inadvertence or neglect may linger undestroyed.



HON. WALTER R. ROLLO,
Minister of Labour.



WILLIAM OLDRIGHT, A.B., M.B.,
1st Chairman, 1882-1884.



PETER HENDERSON BRYCE, M.A., M.B., L.R.C.P. S. Edin..
1st Secretary, Chief Officer of Health and Deputy Registrar-General, 1882-1904.

1910-1920

A REVIEW OF TEN YEARS' PROGRESS

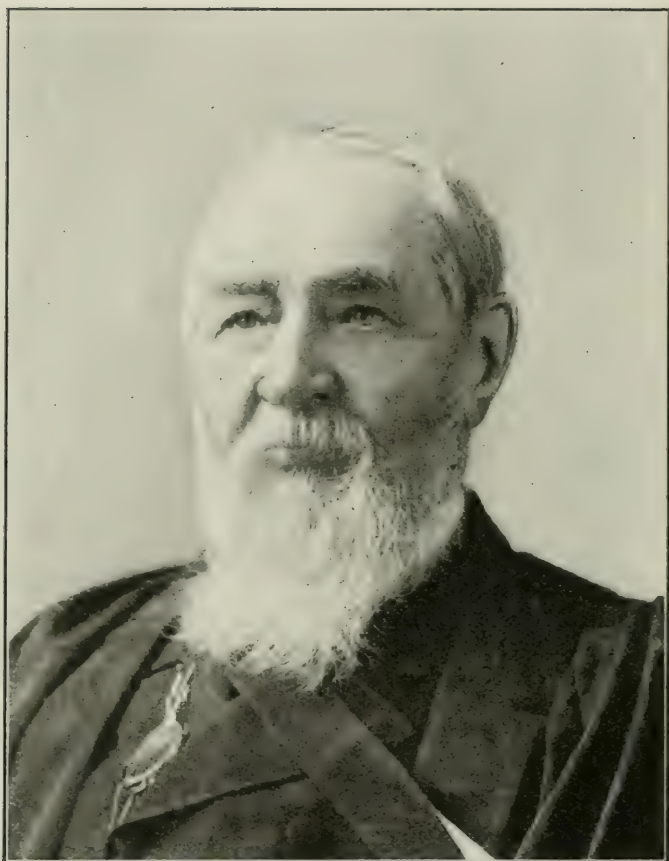
The Chief Officer having completed ten years' service in charge of the work of the Provincial Board of Health has published a statement of the progress made in public health in Ontario during this period. This, with a brief account of the earlier history of Public Health in Ontario is included in this report and is substituted for the usual review of the year's work.

EARLY HISTORY OF PUBLIC HEALTH IN UPPER AND LOWER CANADA.

The earliest evidence of the recognition of Public Health in Canada was the enactment of the Quarantine Act in 1794.

The epidemic of cholera (1832-4) stimulated the Legislature of Upper Canada to action, and an Act to establish Boards of Health was passed by that body. From this time to 1848 there was little or no activity in respect to public health matters. (The Provinces of Upper and Lower Canada were united in 1840). There was a typhus epidemic in Canada in the years 1845-47, and of cholera in 1849, and again in 1854-5. It will be of interest in passing to note that in 1847, immigrants to the number of 98,106 passed through the port of Quebec. Of these 8,691 were admitted to Grosse Ile Hospital. Three thousand two hundred and twenty-six of these and two thousand one hundred and ninety-eight others on ships in quarantine died of typhus fever, and are buried at Grosse Ile. The outbreak of cholera was doubtless the reason for the enactment establishing "A Central Board of Health" in 1849. The public mind remained undisturbed in respect to public health until 1866, when the outbreak of cholera in that year induced the Government to enact new regulations looking to the control of the disease. Confederation of the provinces of Canada occurred in 1867, and in 1873 a Public Health Act passed in Ontario permitted the appointment of members of municipal councils and trustees of police villages to act as health officials (Local Health Committees). These were the forerunners of the present local boards of health.

Apparently our forefathers (something like ourselves) needed an epidemic of some sort to create interest in health matters. There was a severe outbreak of yellow fever in the United States in 1877. In the following year a select committee of the Legislature of Ontario was appointed to consider the report "on the subject of sanitary measures for maintaining and promoting the public health." This committee having reported, agitation became quite general about 1881 for the creation of some permanent central health organization in Ontario. Various commissions were appointed. These reported favourably, and in 1882 the Provincial Board of Health was established under the authority of 45 Victoria, Chap. 29, R.S.O. A permanent



CHARLES WILLIAM COVERTON, M.D.,
Chairman, 1884-1887.

secretary in the person of Dr. Peter H. Bryce was appointed. He continued in office until the year 1904, when he resigned to become Chief Medical Inspector to the Department of the Interior and Indian Affairs at Ottawa.

It will be remembered that the enactment of 1873 permitted the appointment of local health committees, but up to 1882 only fifty of these committees have been appointed.

The first meeting of the Provincial Board of Health was held in Toronto *on May 9th, 1882*. The first Chairman was Dr. Wm. Oldright, and the other members were Dr. C. W. Coverton, Dr. J. Hall, Dr. J. J. Cassidy, Dr. F. Rae, Dr. H. P. Yeomans, and Dr. P. H. Bryce, Secretary.

The first annual report was published in 1882-3. From the earliest days the reports of the Board are filled with interesting material showing that the members of the Board were fully alive to their duties. In November, 1882, Principal John Galbraith, C.E., of the School of Applied Science, was appointed to succeed Dr. J. Hall, who had resigned. Of the early members of the Board the sole survivor is Dr. Peter H. Bryce.

The Premier of the day, Mr. (afterwards Sir Oliver Mowat), speaking to Dr. Bryce (the first Secretary of the Provincial Board) said: "We have passed this health legislation but have little knowledge of just what there is to do, or of its extent, but in any case, Dr. Bryce, its success will wholly depend upon your energies." These words were spoken thirty-eight years ago, and as Dr. Bryce says: "The comparison of the grant of \$4,000 in 1882 for the payment of the half-time Secretary of the Board and for travelling and other expenses, with the half million or more voted in 1920, will serve to illustrate the evolution of Public Health as a part of the social activities of a progressive modern community."

The original Act passed in 1882 had in addition to the establishment of the Board the following objects:—

- (1) Collection and dissemination of sanitary information.
- (2) Health legislation.
- (3) Investigation of the causes of diseases.
- (4) Dealing with outbreaks of disease.
- (5) Dealing with food and drink supplies.
- (6) Concerning school hygiene.
- (7) Sanitary Supervision of Public Institutions.

It needed considerable courage to enact what were considered drastic health laws in those days, and it was with some misgivings, and undoubtedly acting under the advice and pressure of the energetic Secretary and his Board that the Premier of the day introduced and passed in 1884 the Public Health Act, which with succeeding amendments is the basis of the excellent Health Code existent at the present time. The Public Health laws of Ontario, like most of our laws, are founded on those of England, and we who are concerned with public health work at



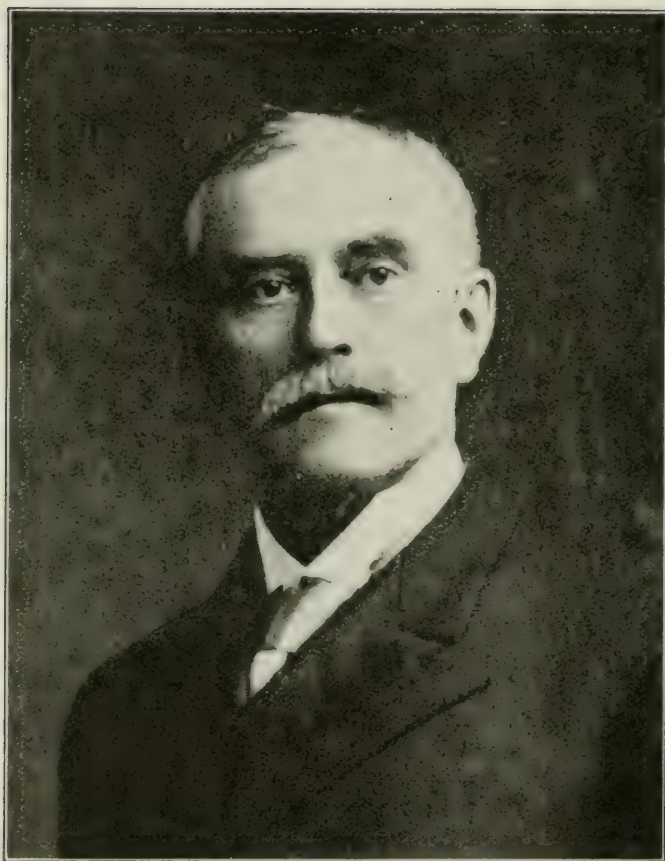
FRANCIS RAE, M.D.,
Chairman, 1887-1890.

the present time have reason to be grateful for the wisdom and courage of our predecessors. These laws are also the basis of much of the Public Health law of the other provinces of Canada. There is, perhaps, no public health law in America any more concise and satisfactory than that of Ontario. The value of the Act was submitted to an early test in an outbreak of smallpox which occurred in the autumn of 1884 in the Township of Hungerford. There were 204 cases with 33 per cent. of deaths. Dr. Bryce took charge of matters and succeeded in having over 4,000 of the population vaccinated. By this means the epidemic was promptly checked. The powers of the Act were enlarged from time to time: in 1885 to allow the Board to deal more effectively with contagious diseases, in 1886 for the expropriation of land for isolation hospitals, and in 1887 for notification of Public School teachers in cases of contagious diseases. In the same year provision was made for inspection of slaughter houses, and of dairy and ice supplies. The position of Chief Officer of Health, including that of Secretary of the Board, was created in this year. In 1889 Stipendiary Magistrates were made Health Officers for the unorganized districts, and still hold this office. In 1900 the Act to establish County Sanatoria was passed, providing for assistance in the cost of building and for a per capita grant in the maintenance of patients. The effect of this legislation upon the mortality of tuberculosis in Ontario is dealt with elsewhere in this review. In 1892 the Registration of Births, Marriages and Deaths was placed under the control of the Secretary of the Provincial Board, who became Deputy Registrar-General.

The year 1890 was prolific in important additions to the Act; such, for example, as inspection of meat and milk, and of animals suffering from contagious disease. In this year provision was made whereby County Health Officers might be appointed. This enactment failed to enlist the encouragement it deserved. This may have been due to hesitation on the part of the County Councils to incur the expense hitherto and still borne by the municipalities. Another reason may have been the large size of our counties. Greater results might possibly have been attained if the Government had been wise enough to have given some financial assistance for public health purposes to the counties. The provision for County Health Officers remained on the statute books until the revision of 1912, when it was dropped. Some changes were made in the appointment of local boards in 1895, and in this year the important step of placing *the approval of plans for water supplies and sewerage works* in the hands of the Board was made law. The present satisfactory condition of a large proportion of our public water supplies may be traced to this enactment, and to the subsequent stiffening of the law in this respect.

In the years 1896 to 1900 further provision was made in the licensing and inspecting of meat and milk supplies. The recog-

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JOHN JOSEPH CASSIDY, M.D.,
Chairman, 1890-1894.

dition of the increasing importance of the lumber trade in the immense forest areas of Ontario, as well as the mining industry led to the enactment in 1901 of *provisions for the sanitation of industries in unorganized territory*. This was the first recognition of industrial hygiene in Ontario.

Up to 1890 the office of the Board was located on the upper floor of Philip Jamieson's shop, at the north-west corner of Queen and Yonge Streets, and in the same year the first Public Health Laboratory was established under the direction of Prof. J. J. Mackenzie, now Professor of Pathology and Bacteriology in the University of Toronto. The laboratory was situated above John Wanless' jewellery shop in the west side of Yonge Street, between Queen and Richmond Streets. Later it was moved to the Biological Building of the University, then to the Medical Building, and in 1911 to No. 5 Queen's Park. Before these lines are read we shall probably have moved to more commodious quarters of which some future historian may write.

Professor Mackenzie has been good enough to write as follows:—

"The Board of Health, at that time (1890) was in the Department of Agriculture, and the offices of this branch of the service were in the upper floors of the building upon the north-west corner of Queen and Yonge Streets. With the establishment of the laboratory, the Board of Health moved into rooms on the top flat of the Wanless Building, a few doors below Queen Street on Yonge Street. The Board remained in these quarters until the present Parliament Buildings were opened, when the laboratory was moved to a room in the Biological Department of the University.

"There was no special appropriation at first for the equipment and maintenance of the laboratory, but this expense was met from an appropriation in the Department of Agriculture for the investigation of diseases of animals.

"Almost the first work undertaken by the laboratory was the investigation of outbreaks of rabies. An interesting point about this was that in 1895 I saw the structures afterwards described as 'Negri Bodies' in the brains of rabbits dying from rabies, in dogs and in the brain of a child who had died of rabies in Hamilton. I thought the structures were degeneration products, and so described them at the meeting of the British Association in Toronto in 1897. In the annual report of the Association for that year there is a brief abstract of the finding.

"The work gradually extended to systematic bacteriological and chemical examination of water supplies. The systematic examination of suspected diphtheria swabs, suspected tuberculosis sputum and blood from cases of suspected typhoid fever, *was begun by the laboratory earlier than anywhere else in America.*



JOHN DUFF MACDONALD, M.D.,
Chairman, 1894-1900.

"An interesting study of a local outbreak of typhoid fever near Innerkip was made in 1896 when one of the earliest suggestions of the role of the typhoid carrier, in the causation of circumscribed outbreaks of typhoid, was made. In this epidemic the Widal test was made on all the cases and the contacts. Tuberculin testing of cattle was initiated by the laboratory, and for a time, tuberculin and mallein were imported from the Pasteur institute, Paris, and distributed where required in the province. About 1895 the laboratory also imported diphtheria antitoxin from the Pasteur Institute and for a few months distributed the supply.

"Throughout this time, as head of the laboratory, I did all the bacteriology and chemical work without assistance except that of a boy to look after the animals and clean up the glass-ware."

Dr. Mackenzie remained in charge of the laboratory until 1900, when he was succeeded by Dr. John A. Amyot, who, following his appointment as Deputy Minister of Health at Ottawa, was succeeded in 1919 as Director of Laboratories by Mr. H. M. Lancaster, B.A.Sc. Dr. Bryce was succeeded as Chief Officer in 1904 by Dr. Chas. Hodgetts, who for some years previously had been Provincial Medical Inspector. The latter position was in the same year taken by Dr. R. W. Bell, who is still in active service. In the same year a branch laboratory was established in connection with Queen's University, Kingston. This laboratory was for many years in charge of Dr. W. T. Connell, who resigned in 1920, to be succeeded by Dr. James Miller. Dr. Wm. Oldright (1882-4) was succeeded as Chairman of the Board by the following:—Dr. C. W. Covert (1884-7), Dr. Francis Rae (1887-90), Dr. J. J. Cassidy (1890-4), Dr. John Duff Macdonald (1894-1900), Dr. Henry Edward Vaux (1900-3), and Dr. Edward E. Kitchen (1903-6).

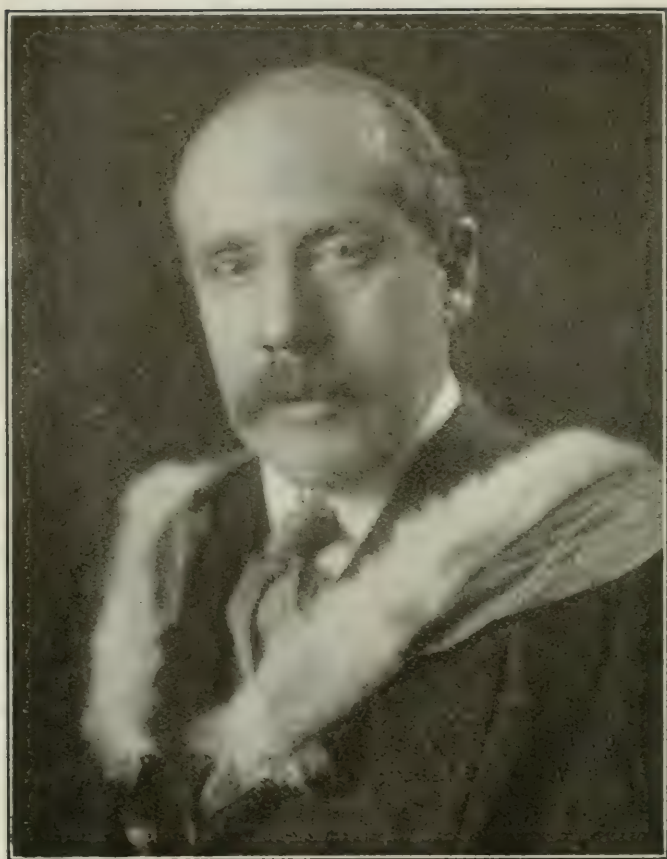
In 1906 Dr. Chas. Sheard, the present Dominion member for one of the Toronto ridings, became chairman. Dr. Sheard had been for some time Medical Officer of Health for the City of Toronto, holding the latter position for 18 years. He was succeeded in 1911 by Dr. Adam H. Wright, the present chairman.

Dr. Bryce, to whom the writer is indebted not only through the reports of twenty-two years, but by personal communications for the greater portion of this review says: "It is a pleasure to me to have recalled these stages in the growth of Public Health in Ontario and to feel, like Aeneas relating to Queen Dido his wanderings till he reached the dear Lavinian shores and founded his new home, that I have been an important part of it all."

"Et quorum pars magna fui."

Relative to the laboratory Dr. John A. Amyot writes as follows:—

"When I took over the laboratory in 1900 I was alone, I



PROF. J. J. MACKENZIE,
First Bacteriologist.

cleaned the glassware, fed the animals, made up the media and standard solutions, did the examinations, the results of which (1,250 that year) I reported in longhand. When we moved into the Medical Building we had both bacteriological and chemical assistants and a cleaner. We lacked a stenographer, but signalled to the Parliament Buildings with a white towel when we wanted one. This plan did not work well. In 1902 our first field work in sewage disposal was done in Berlin (now Kitchener). When we moved to 5 Queen's Park the first Pasteur vaccinations were done, the vaccine used being sent by special delivery mail from New York daily. An Experimental Plant (for sewage and water) was established in Stanley Park; the Laboratory in London set up; and the first laboratory 'check off' of a municipal water plant was done at Lindsay in connection with the 'Ozone' purification scheme there."

George G. Nasmith, Ph.D., was the first chemist on the staff of the Laboratory. He was appointed in 1902 and continued in this position until the year 1910, when he became Chief of the Laboratories of the Health Department of the City of Toronto. Despite none too robust health, he served overseas in the war for several years, reached the rank of Colonel, and for distinguished services was awarded a C.M.G.

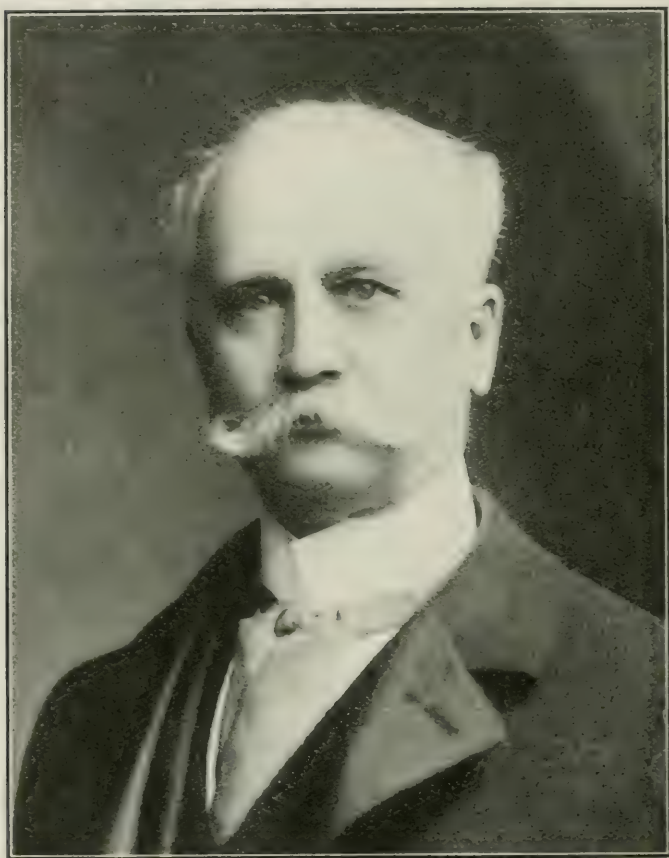
Dr. Chas. A. Hodgetts, who became Chief Officer of Health in 1904, had previously been Provincial Inspector of Health, and brought to his new position a thorough practical training in the Board's work. The experimental station was established during his period of office, and he points out that in 1904 no fewer than 35 sewerage problems and 25 water situations were investigated, clearly showing the necessity for such an experimental station. In the same year the first official investigation of the sanitary condition of the Muskoka and Kawartha Lakes districts was made. Every year brings to these and the other summer resorts of Ontario thousands of visitors from all over the continent. It is to the credit of the sanitary supervision maintained by the Board that it is only very rarely that a case of typhoid fever can be traced to any of these summer resorts.

The Health exhibit was originated by Dr. Hodgetts in 1908.

The complete history of the Boards service may be found in the reports published from year to year.

MOTTO OF THE PROVINCIAL BOARD OF HEALTH.

The motto of the Provincial Board of Health, "*Ne pereat populus Scientia absente*" (Let not the people perish for lack of Knowledge) is peculiarly fitted to be the aim of a Public Health Department. It was first proposed by Mr. Irving H. Cameron, M.B., F.R.C.S., Eng., for many years Professor of Surgery in the University of Toronto, who, though not actively engaged in



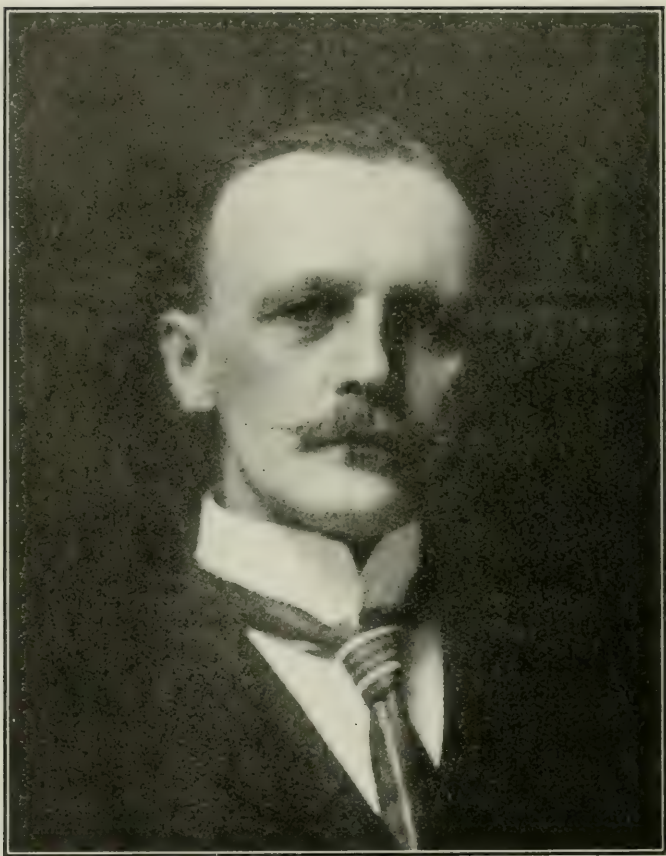
HENRY EDWARD VAUX, M.D.,
Chairman, 1900-1903.

public health work, has been and still continues to be profoundly interested in the field of preventive medicine. The use of this motto has heretofore been overlooked, if not almost abandoned. It is intended to revive its use in this and future publications of the Board.

THE PROGRESS OF TEN YEARS.

The progress of public health in Ontario has necessarily been slow. This has been due chiefly to the immense area of the province (some 403,000 square miles), the comparatively small and scattered population, and the difficulty of securing financial support for what many people have considered a useless expenditure of money. Thanks to the energetic spirit of the members of succeeding Provincial Boards, and particularly to the exertions of my able predecessors, Dr. Peter H. Bryce, the father of public health in Ontario, and Dr. Chas. A. Hodgetts, C.M.G., as well as to Dr. John A. Amyot, for some time Professor of Hygiene in the University of Toronto, wide knowledge of the value of preventive medicine had been spread among our people. The writer joined the Board in 1906 under the ministry of a broadminded member of the Government, the late Hon. W. J. Hanna, K.C. In 1910 Dr. Hodgetts resigned the position of Chief Officer of Health to become Medical Adviser to the Commission of Conservation, and was succeeded by the writer. One of the earliest duties at this period was to secure a consolidation of the public health laws, which had been for some years under consideration by the Board. This was accomplished in 1912. An important addition to the Act provided for the appointment of ten District Officers of Health. At the outset seven were appointed, five of whom were assigned to the older portion of Ontario and two to the newer and less organized portion. The District Officers are legally qualified medical practitioners, who were given a special training for their work. They are full-time men, who have given the greatest satisfaction in their respective areas. An additional officer was appointed for the area adjacent to Sault Ste. Marie this year.

The Board ordinarily meets at intervals of three months, and it was found that many matters, such as the approval of the plans of water and sewerage works, were unduly delayed by having to wait for a meeting of the Board. To obviate this difficulty an amendment was secured in 1911, giving the Chief Officer all the powers of the Board in the interval between meetings. The status of the local Medical Officer of Health has been much improved by the new Act, which provides that he can not be dismissed, except for cause and with the approval of the Board. In addition the Medical Officer of Health is made a member of the local Board of Health and its executive officer, and an additional



CHARLES ALFRED HODGETTS, M.D., L.R.C.P.,
Chief Officer of Health and Deputy Registrar-General, 1904-1910.

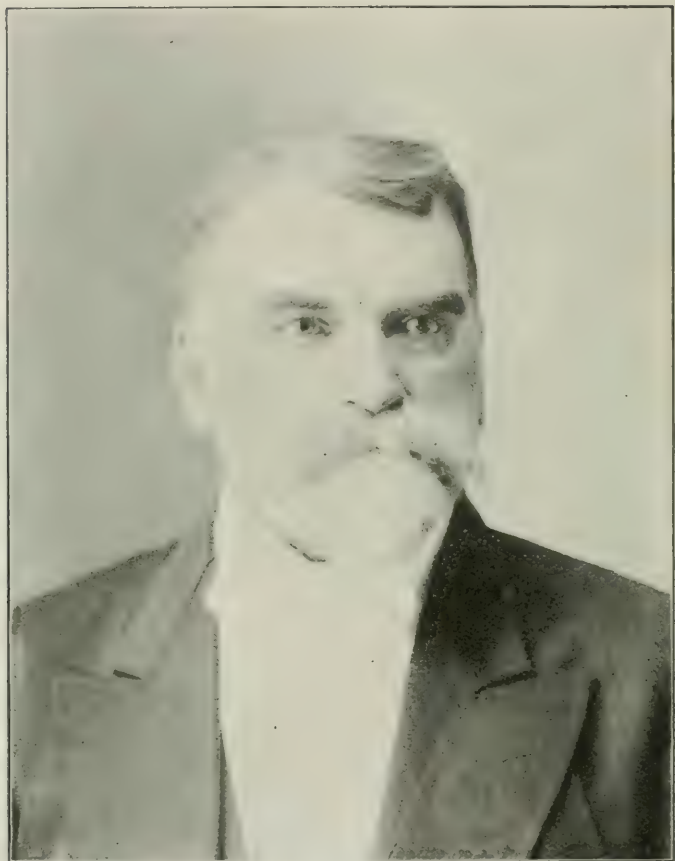
amendment, passed in 1918, referred disputes as to the salary of the Medical Officer of Health to the County Judge. An annual conference of health officers was established by the Act, and since 1912 local Medical Officers of Health have met every year.

The several amendments respecting the Medical Officer of Health have served to secure some continuity in his tenure of office. The emolument, never very large, has been increased in the majority of cases, and the general personnel has been improved so far as could be expected in a part time service given by men busy in practice. There are some 830 municipalities in Ontario. These are served by about 730 Medical Officers of Health.

In the year 1919 the Board, which had heretofore been a part of the Department of the Provincial Secretary, was transferred to the Department of Labour, of which the Hon. Walter R. Rollo is Minister. In the following year the plan of divisional administration was adopted.

DIVISION OF LABORATORIES.

The Public Health Laboratories of the Board at Toronto and Kingston were supplemented in 1911 by one at London in connection with the Institute of Public Health in that city. An Experimental Station in Stanley Park, Toronto, was opened in 1908, and has grown to extensive proportions. At this plant the various types of water purification and sewage disposal are shown, and experiments carried on in this important work. Additional public health laboratories were established at Fort William in 1919, and at Sault Ste. Marie and North Bay in 1920. Each of our laboratories is now in charge of a competent full-time director and carries on public health laboratory work of every variety. Thus our laboratory system has grown from the modest unit of 1890, established under Prof. J. J. Mackenzie over a shop in Yonge Street, Toronto, to seven extensive and well-equipped ones placed at strategic points all over Ontario. Many of the larger cities now have laboratories of their own. The various laboratories of the Board supply a free service to the medical profession and public. In addition to the ordinary work of a laboratory, the Toronto Laboratory prepared and supplied free of cost to the Department of Militia and Defence, the major portion of the T.A.B. vaccine used in the Great War for the protection of Canadian soldiers against enteric diseases. The cost of the vaccine supplied would at ordinary commercial prices approximate to a million and a quarter dollars, and what is of infinitely greater value, may fairly be claimed to have saved thousands of lives which might otherwise have, as in former wars succumbed to typhoid fever. The Laboratory prepares pertussis vaccine, preventive treatment for babies' sore eyes, and provides the Pasteur preventive treatment for rabies. Within the last year the preparation of arsphenamine has been undertaken, and our pro-



EDWARD E. KITCHEN, M.D.,
Chairman, 1903-1906

duct (called Phenarsenamine) is in general use in all our Venereal Disease clinics. In 1899 there was a total of 1,370 specimens examined in the only laboratory (Toronto) then in existence. In the present year, notwithstanding the fact that six other of our laboratories are carrying on public health work in Ontario, the Toronto laboratory averaged about 1,000 specimens a week.

FREE DISTRIBUTION OF BIOLOGICAL PRODUCTS.

In the year 1914 the Board began a practical demonstration of the possibility of supplying the people of Ontario biological products, such as diphtheria antitoxin, at prices much below those of commercial houses. This plan had been anticipated to some degree in 1910, when there was an outbreak of rabies in the western portion of Ontario. Previous to that date the nearest available Pasteur Institute was in New York City. The expense for the preventive treatment of persons bitten by rabid dogs under such circumstances was frequently beyond the means of any but wealthy persons, and in some instances had to be borne by the municipality. Arrangements were made whereby this treatment was afforded at a cost of twenty dollars per person. In 1914, when Dr. J. G. FitzGerald, with the very cordial and hearty co-operation of Sir Edmund Osler, then Chairman of the Medical Section of the Commission of Conservation and a Governor of the University of Toronto, established in the University of Toronto the Antitoxin Laboratory, the Board was able to make arrangements for the supply of antitoxins and vaccines at an extremely low price. This plan was in 1916 succeeded by a system of free distribution of biological products of all kinds. This contribution to the public health service is largely due to the generosity of Col. Albert E. Gooderham, a public-spirited citizen of Toronto. This gentleman donated a farm of some 51 acres with suitable buildings to the University of Toronto for an antitoxin laboratory. This property is known as the Connaught Laboratories, and here the various biological products are prepared. They are sold practically at cost to the Board, which in turn supplies them free to the public. The establishment of these laboratories has made diphtheria antitoxin, etc., of first-class quality available at cost price, not only in Ontario, but to all of Canada. Carefully collected statistics of late years have shown that the mortality from diphtheria among us has been greatly reduced. For example, in 1903 there were 31 deaths in every 100,000 of population, while in 1918 the rate had been reduced to 12 in the 100,000. If the knowledge of the value of antitoxin were widespread and every case treated by this means on the first day of the affection the mortality from this dreadful disease would soon be reduced to nothing and the disappearance of the disease itself would be within the range of possibility.

MATERNAL AND CHILD HYGIENE AND PUBLIC HEALTH NURSING.

Just before the commencement of the Great War a beginning was made towards the establishment of a Child Hygiene Bureau. Progress during the war period was necessarily slow because of lack of funds. The subject was actively taken up during 1919, and in the present year a Division with the aforementioned title established.

In forming this Division the Board had in mind the excellent results attained by a somewhat similar movement in New Zealand, begun years ago by Lady Plunkett, and carried into successful operation by the efforts of Dr. Truby King. This movement among our kin on the other side of the world has had remarkable success in reducing the infant death rate, etc., making New Zealand the premier nation of the world in the care of the health and lives of its babies. There is no reason why similar success may not be attained in Ontario.

A director, assistant director and a pediatrician were appointed, and a group of nurses trained for the purpose of establishing community health centres and baby clinics throughout Ontario. A travelling clinic was organized and the "Child Welfare Special" secured. The work is now in active operation and promises splendid results.

The saving of child life does not depend altogether upon work among the babies themselves. Efforts in this direction are commendable and of great value. Much in addition may be accomplished by supervision of the pregnant mother. Our work is not among the well-to-do, who are likely to have medical supervision during pregnancy. There is greater need among the middle and poorer classes of people. What the pre-natal clinic will accomplish is strikingly illustrated by the records of the Burnside Lying-in Hospital in Toronto during the last two years. These are as follows:—

	Semi-private cases.	Public Ward cases unsupervised.	Public Ward supervised by a clinic.
Number of cases...	1,198	505	416
Death of mother...	10. (0.8%)	18 (3.5%)	2 (0.4%)
Still-births	45 (4.0%)	40 (7.9%)	6 (1.3%)
Eclampsia			
(Convulsions)	20 (1.6%)	16 (3.0%)	2 (0.4%)

The comparison is made plainer if one analyzes the different groups in terms of 1,000. Thus it will be seen that in the semi-private cases which were unsupervised the mortality was 8 per 1,000 births, in the public ward unsupervised cases 35 per 1,000, while in the supervised public ward cases the rate was only 4 per 1,000. In still-births the rates for the corresponding groups were 40, 79 and 13 respectively. In the case of eclampsia the



CHARLES SHEARD, M.D., M.R.C.S., Eng.,
Chairman, 1906-1910.

ratios were 16, 30 and 4 per 1,000. Is there any better argument for medical supervision of pregnant mothers? To secure proper attention for the mothers and their babies is the field assigned this Division.

Miss Mary Power, B.A., is the Director and Miss Beryl Knox, Assistant Director. Dr. W. J. Bell is Pediatrician.

Much of the initial effort in formulating the plan of the Division is due to the Board's Consultant in Pediatrics, Dr. Alan Brown. To him and his associates is due the credit of training our nurses and other officers of the division. The addition of a dietitian, and of a *Consultant in Obstetrics, will prove of further assistance. It is scarcely necessary to point out the value to any country of the proper care of infant life. Not only will an immense proportion of child life be saved by suitable measures, but it is safe to predict that the physique of our people will in future years be found to have been greatly improved by the efforts in this field of preventive medicine. Viewed in the light of our present knowledge this is probably the most promising field of public health work in this country.

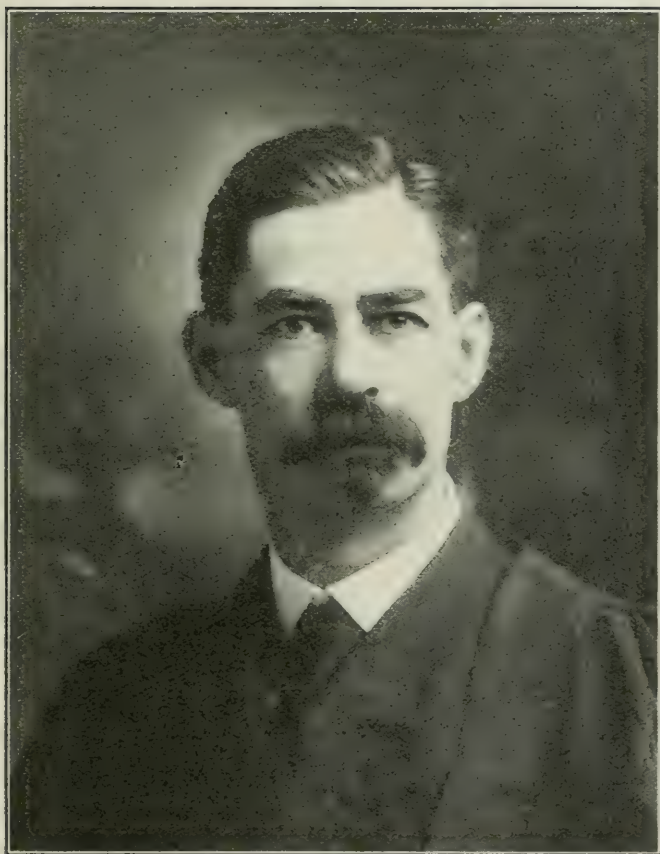
EDUCATIONAL.

The Board has long recognized that the education of the people in the value of public health measures is the surest way to stimulate interest in this subject, and to gain the financial support necessary to carry out modern sanitary measures. The Health Exhibit referred to is one means, the distribution of sound literature upon topics of preventive measures another. It has been found to be comparatively easy to gain public support of sanitary measures when the public understand their value. So the Board has systematized the distribution of literature by making the public schools, the Women's Institutes, and other voluntary agencies the means of distribution. The publication of Health Topics in the weekly papers, and advertising to some extent have been utilized. In the present year a Division of Public Health Education has been established and its direction placed in the hands of a competent physician, who is charged with the work of disseminating useful public health knowledge. J. J. Middleton, M.B., D.P.H., is Director of this division.

PUBLIC HEALTH EXHIBITS.

From a small beginning originated by our predecessor the exhibit feature of the Board's educational programme has grown to large proportions and includes a general exhibit in all phases

* (B. P. Watson, M.D., F.R.C.S., Edin., Professor of Obstetrics in the University of Toronto, has just (1920) been appointed Consultant in Obstetrics.)



DR. J. A. AMYOT, C.M.G.,
Formerly Chief of Laboratories.

of public health work, including motion pictures, models, child hygiene, tuberculosis, venereal disease, sanitary engineering, etc. The exhibit has been shown in almost all parts of the province accessible by rail, and forms a splendid feature at the great exhibition held for two weeks each year in Toronto. This year we added a "Child Welfare Special," of which greater details are given in the remarks upon maternal and child welfare.

The following remarks from one of our Toronto papers indicate public opinion regarding the exhibit:—

"The stress being put on the importance of health by the Drury Government is much to the credit of the Administration. Whether the Provincial Health Officer, Dr. McCullough, is being given a freer hand by Hon. Walter Rollo, the Minister of Labour and Health, than he had under previous Ministers, or there is some other explanation, the fact is that between them the province is taking greater strides towards improving conditions throughout its bounds. The exhibit of the Health Board at the Canadian National Exhibition affords tangible evidence of the enterprise of the authorities.

"Among the exhibits is a splendid large motor car that is to provide travelling clinics in the rural districts. Municipalities wishing to have demonstration in ways and means of improving the health of their communities are invited to list themselves for that purpose.

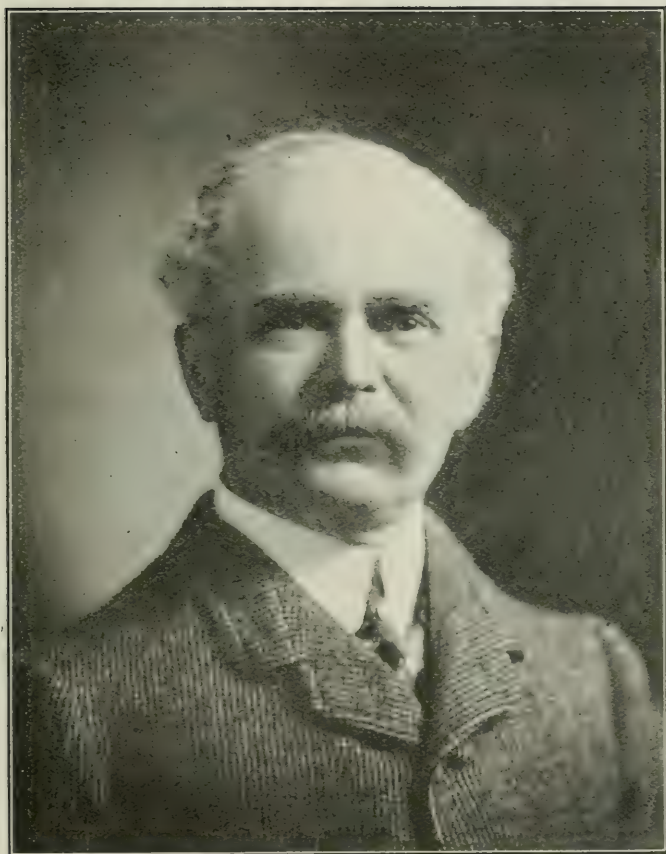
"Another feature of the exhibit is made up of sample meals for children at various ages, and the preparation of menus giving milk and fruit a prominent place. At certain hours of the day, talks are given to the children visiting the Fair by their friend, the community nurse.

"One more evidence of the increased activity of the provincial authorities is the appointment of a Director of Public Health Education."

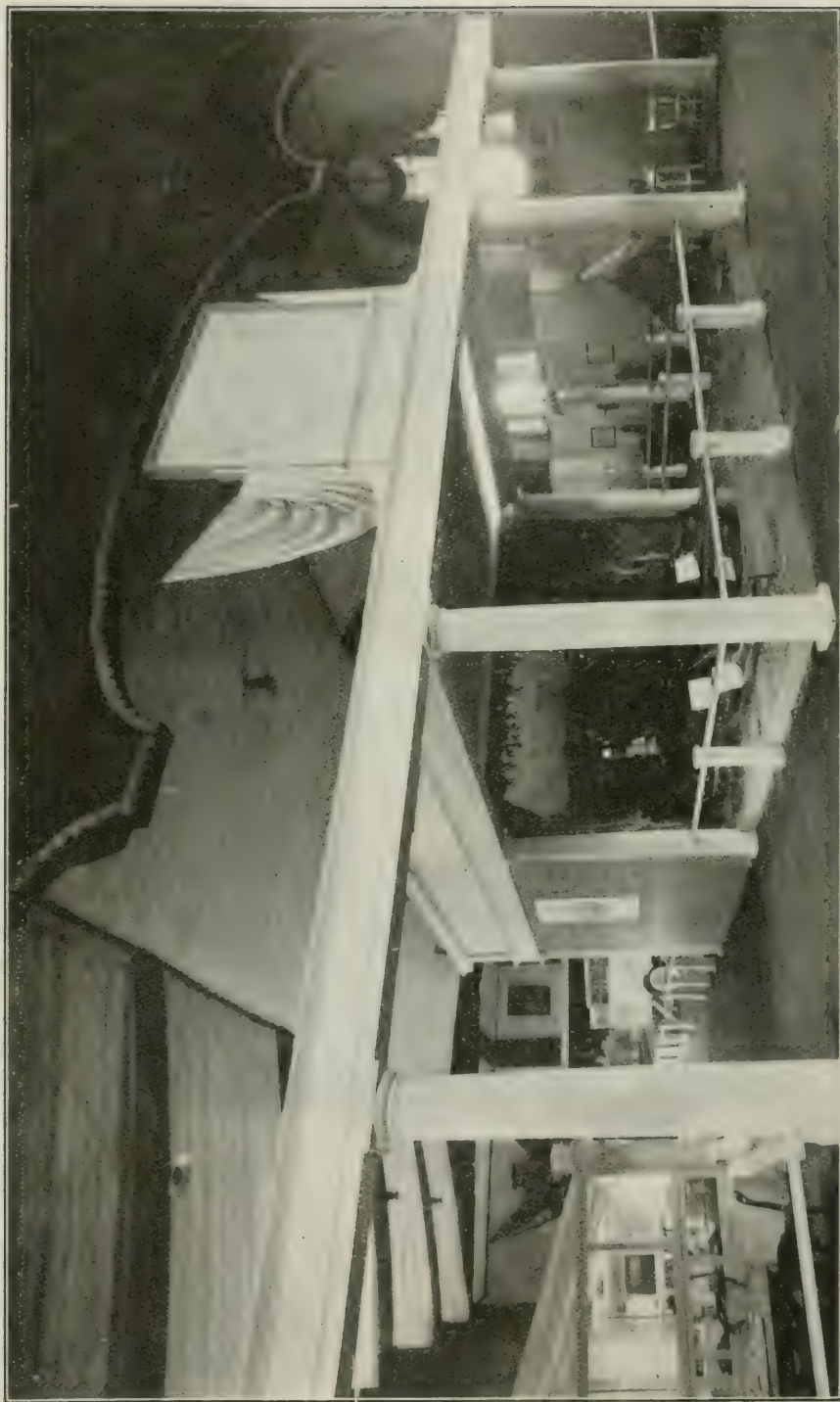
DIVISION OF SANITARY ENGINEERING.

Nothing of a sanitary nature is more conducive to health and comfort than good water and satisfactory sewerage facilities. The early members of the Board were, fortunately, alive to the necessity of gaining control by legislation of the lavish natural water supplies of Ontario. In brief this legislation provides severe penalties against the pollution of lakes and streams, and places under the control of the Board the installation of water and sewerage works.

The plans and specifications of all water and sewerage works come before the Board for approval, without which such works cannot be financed. For the protection of the public health the Board may order the construction of filtration plants, sewage disposal works, improvements in construction, etc.



ADAM H. WRIGHT, B.A., M.D., M.R.C.S., Eng..
Chairman, 1906 to the present.



Public Health Exhibit—Canadian National Exhibition, 1920.

For many years the Board has encouraged the construction of water purification works, and the establishment of the most modern means of sewage disposal. Meticulous attention has been paid to the preservation in their pristine purity of our lakes and rivers. In 1910 there were ten water purification plants in Ontario. In 1920 these had increased to the extent that 42 per cent. of public water supplies are now protected by filtration works, and 82 per cent. are protected by chlorination. The supervision of the water stretches in the Muskoka districts, among the Kawartha Lakes, and other summer resorts has had our constant attention.

The sanitary engineering service has been carried on under a competent engineer since 1911. It has this year been established as a Division, which has supervision of the Experimental Plant already referred to. F. A. Dallyn, C.E., has charge of this Division.

One of the most important pieces of work undertaken by this service was the sanitary investigation of the international waters. This was carried on during the season of 1912-1913 for the International Joint Commission, in association with engineers and chemists of the United States Public Health Service, the Superior Board of Health of Quebec, and the State Boards of Health of New York and Michigan. All the waters from the Lake of the Woods to Cornwall on the St. Lawrence were thoroughly examined by the joint service. The results are tabulated in a voluminous report issued by the Commission. This report, as well as further studies in relation to sewage pollution of water, form the basis of a plan for the care of the sewage of certain large urban centres on the international waterways lying between the United States and Canada. Each season the Board employs a number of engineers in making sanitary surveys throughout Ontario. Arrangements have been made with the University of Toronto for the training of a number of young graduates in sanitary engineering. In order to note public appreciation of the service of the Division, the following article from one of our metropolitan dailies may with propriety be quoted:—

"Ontario has good reason to be pleased with the advances that have been made in ten years to insure pure water for domestic use from municipal waterworks systems. The broad statement that pure water is essential to good health does not express the full meaning. Prior to the development of the science of bacteriology the association of water with enteric diseases was largely conjecture from coincidences of the prevalence of the disease and the use of water from a particular source. Recent investigations have suggested that diseases other than typhoid are associated with water impurity, and that a reduction in the typhoid rate means improvement in the general mortality rate.

"A movement for the improvement of water supplies in the United States and Canada naturally followed laboratory findings.

but was handicapped by an uninformed public. The Province of Ontario was affected by the prevalence of the disease in the State of New York, the States of the Middle West, and the flow of population across the boundary. Improved legislation was granted the Provincial Board of Health in 1912, and a renewed effort to improve existing water supplies was undertaken. What has been accomplished places Ontario in a leading position so far as typhoid reduction is concerned. With a mortality from this disease in 1919 of only 5.2 per 100,000 of population, as compared with 31.5 ten years ago, Ontario may be said to be making big strides in sanitation."

DIVISION OF VENEREAL DISEASES.

Previous to the war the problem of the control of syphilis and gonorrhœa had received little attention in Canada. No part of Canada had any legislation bearing on this subject. Conditions in the army focussed public attention upon the question, and there was some discussion in the press as to whether or not the soldiers sent overseas were being sufficiently protected against the venereal evil. It soon became apparent that the measures of control adopted in the army were of greater value than those in effect among the civil population. Enlistments showed that, proportionately, there was more venereal disease in the civil population than in the army. In September, 1916, out of nearly 42,000 Canadian troops in Great Britain there were 960 venereal disease cases. During the month of September, 1918, of 110,000 Canadians in Great Britain there were but 750 cases, a reduction in the admissions during this interval of 66 per cent. The evidence of effective measures used in the army, the report of the Sydenham Royal Commission in England, and the efforts of an Honorary Advisory Committee in Military District No. 2, and of the Toronto Academy of Medicine influenced the Ontario Government to appoint the Hon. Mr. Justice Hodgins as a Royal Commission of Investigation in 1917. The result of the report of this commission was that in the Session of 1918 the Government passed the Venereal Diseases Prevention Act, the earliest comprehensive legislation of the kind in Canada. In the summer of 1917 the Committee referred to, associated with the Provincial Board of Health of Ontario, had taken up with the Dominion Government the question of issuing a license to the Board to produce an arsphenamine product under the War Measures Act in order to reduce to reasonable proportions the cost of this remedy. This license was granted in March, 1920, and our product (which we have named Phenarsenamine) is now in use in our clinics and Board of Health. With the assistance of the public health officers of other provinces of Canada, and of social workers interested in the question of venereal disease, pressure was brought by the Board to bear on the Dominion Government to give financial aid to the provinces in the care of venereal cases.



Public Health Exhibit--Canadian National Exhibition, 1920.

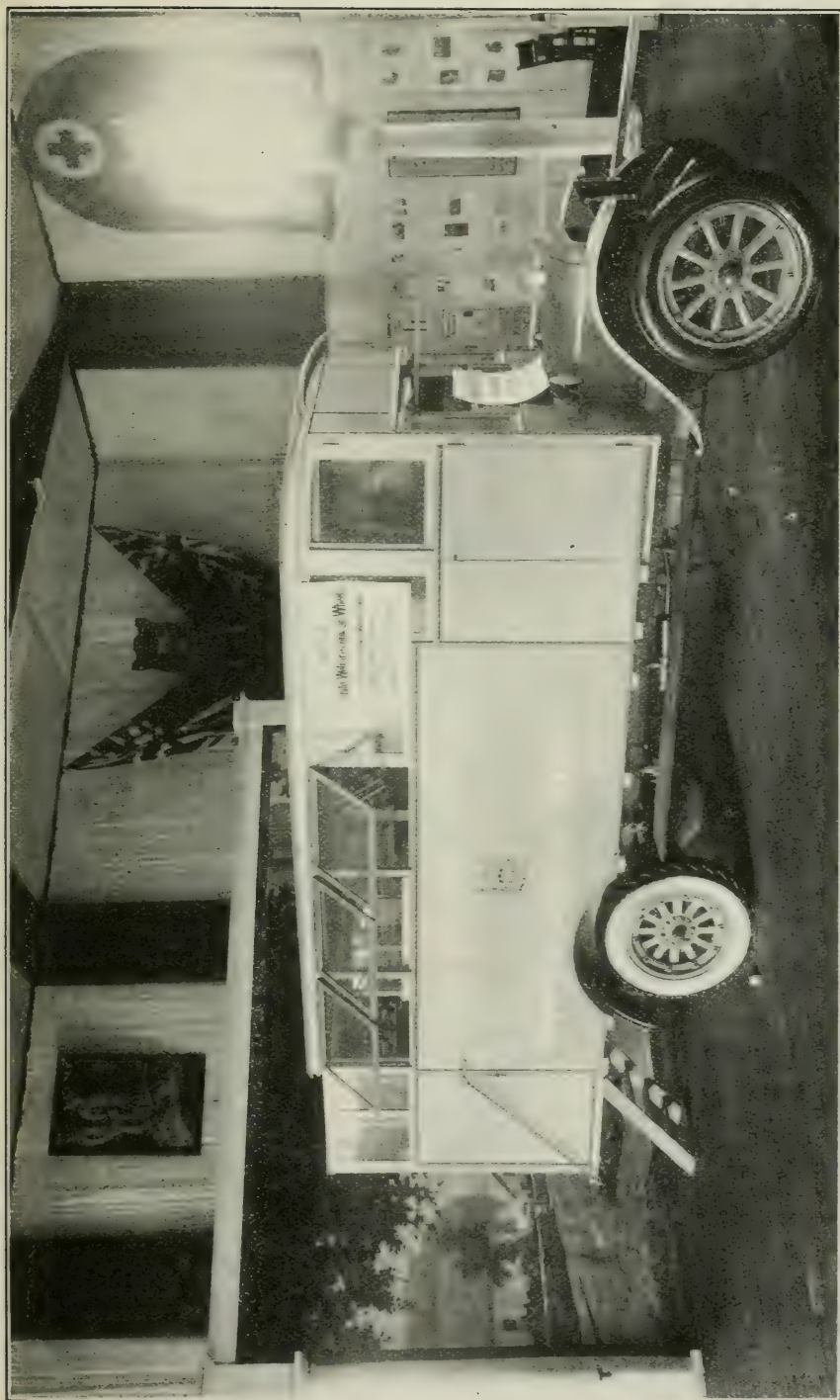
and at the recent session of Parliament the sum of \$200,000 was voted for this purpose. This money is to be distributed to the provinces in proportion to population on condition that an equal amount is voted by the several provinces. In the present year Ontario voted \$115,000 for venereal disease work, a Division of Venereal Disease was formed, and ten clinics have been established. Our plan of procedure in forming clinics is as follows:— To a hospital or Board of Health we offer a grant of \$1,000.00 for the equipment of a clinic; \$500.00 annually towards the expense of a social worker, and \$500.00 annually towards the pay of the specialist in charge of a clinic. For treatments we pay fifty cents each in case of either gonorrhœa or syphilis, and in case of bed patients twenty-five cents additional. We also furnish standard history sheets and report forms, and free Phenarsenamine. A strong National Council for combating venereal disease along the lines of that established in England has been formed with the Hon. Mr. Justice Riddell, a broad-minded Canadian as the President. The Board appreciates the assistance already afforded by this organization. The indefatigable Secretary, Dr. Gordon Bates, possesses the energy of several persons, and is an active worker in promoting everything likely to assist in curbing the ravages of venereal disease.

As in respect to all other phases of public health work the Board has strong views on the value of education in venereal disease work. A number of excellently written booklets on various phases of the subject have been prepared, and in addition a little volume entitled "To-day's World Problem in Disease Prevention," donated by Dr. John A. Stokes, of Rochester, Minn., U.S.A., has been widely circulated among the medical profession. We are happy in having the co-operation of the various medical societies of Ontario, and plans are under way for lectures and the presentation of motion pictures at society meetings. Dr. R. Roy McClenahan has charge of this Division.

DIVISION OF INDUSTRIAL HYGIENE.

This is one of the newest of the Board's activities. Ontario, while in the main devoted to agriculture, is rapidly becoming, particularly in certain localities, a great industrial centre. We have extensive timber areas, our mining resources, notably in iron, silver, gold and copper, are of enormous extent. Our nickel mines are probably the largest known. The development of cheap electricity from the utilization of our immense water powers has stimulated industrial growth, particularly in Toronto, Hamilton and places in the Niagara Peninsula. Milling, pulp, paper and agricultural implement manufacture, etc., give employment to a large proportion of our population.

For these reasons it became evident that attention should be given to maintaining safe sanitary conditions for the employees,



Baby Clinic on Wheels —Canadian National Exhibition, 1920.

the prevention of occupational diseases, and to afford information to employers of labor respecting the sanitary conditions arising in connection with their works.

A division of Industrial Hygiene was established this year, and the Director and his assistants are formulating plans designed to form a basis for future development. The legislation upon the subject of health in relation to labour, for Great Britain, the United States and Canada, has been compiled and published. Steps are being taken to collect a reference library on this subject. Studies are being made of the work of this character established in Great Britain and other countries. The subject is one of extensive scope, and future reports will probably record wide development in this field of work. J. Grant Cunningham, B.A., M.B., D.P.H., is the Director of this Division.

TUBERCULOSIS.

The campaign against tuberculosis has received invaluable assistance from various municipalities, such as Toronto, Hamilton and Kitchener, from voluntary societies, such as the National Sanatorium Association, from the Health Associations of Ottawa, Hamilton, London, Peterboro, Essex, St. Catharines, the Heather Club and the Children's Preventorium, the latter two being under the control of the Daughters of the Empire. Excellent educational work has been done by the Canadian Association for the Prevention of Tuberculosis, through their indefatigable Secretary, Dr. Geo. D. Porter. The number of sanatoria has increased in the decade from ten to twenty-five, the accommodation having grown from 615 to upwards of 2,000 beds. The Ontario Government provides an amount up to \$4,000 towards the erection of a sanatorium in a county or group of counties, and 75 cents per day for each patient under treatment. The annual grants have risen in the ten years from \$26,073 to \$279,049.22. The spread of the policy of milk pasteurization has materially helped to prevent the incidence of glandular, bone and joint tuberculosis, which are regarded as being largely of the bovine type. While army experience seems to have shown that the stress of war conditions greatly excited latent tuberculosis among the soldiers, it is gratifying to note that the reduction in the mortality of this disease among our people during the period is a substantial one, the mortality rate having dropped from 102 to 78 per 100,000 of the population. There are certain diseases, and tuberculosis is one of them, in the prevention of which the Dominion Government should lend greater assistance to the provinces. The entire cost of the tuberculosis work in Canada, with the exception of the \$10,000 voted to the Canadian Association, is borne by the provincial Governments. The prevention of this disease is a national question, which can only be solved by the earnest support of the whole country. The notification of tuberculosis was established by law in 1912.

CANCER.

It would be gratifying if the story in reference to cancer were as bright as that of tuberculosis. The facts in respect to cancer are, indeed, serious. Leaving out the consideration that the apparent increase may be accounted for to some extent by the improvement in diagnosis and more satisfactory death records, the fact remains that the mortality, according to statistical reports, has grown in the ten years from 65 to 77 per 100,000 of population. Hoffman, who has made an extensive study of this subject, points out that his investigations prove that cancer is increasing, and that it is a real menace to all civilized mankind. The figures show that upwards of 80,000 persons annually die of cancer in the United States. Taking the mortality for Ontario as a basis it is probable that the number of deaths yearly in Canada would be not less than 7,000. Cancer comes fourth in our table of mortality. At ages over forty it kills one in eight among women and one in fourteen among men. It is a disease of adult life, and at ages over forty is more destructive of life than either tuberculosis or pneumonia. Its insidious onset often occurs at the most useful period of life, when the father and mother are of the greatest service to society. It occurs when the man and woman, from their industry and thrift, might otherwise have had years of ease and comfort before them. Discovered in the earliest stages it is usually readily cured. Once established, the future is hopeless.

The laity know almost nothing about cancer; the medical profession knows little enough. The chief hope of controlling the disease seems to lie in a well-planned campaign of public education, embracing facts such as the following:—

1. That cancer in the early stages gives rise to no pain or symptoms of ill-health.

- (2) That the early signs are:

Any lump or mass in a woman's breast after forty.

Any bleeding, however trivial, after the change of life.

Any wart or sore on the lower lip of a man forty-five years of age.

Any sore on the tongue of a man of forty-five years.

Any bleeding from the bowel in a man or woman after forty years.

- (3) It should be pointed out that warts, moles or growths on the skin liable to irritation should be removed and that irritation of the tongue and cheeks by jagged teeth, or of the lower lip by clay pipes, etc., should be avoided.

INFLUENZA.

There was a widespread and virulent epidemic of influenza in the autumn of 1918 and early winter of 1919. The same affection prevailed to a lesser degree during the corresponding seasons of 1919-20. Not since 1889-90 had this affection appeared in epidemic form. It spread from Europe and became general all over this continent. The mortality, due chiefly to the accompanying broncho-pneumonia, was exceedingly high. In the 1918-19 period there were upwards of 10,000 deaths. In 1920 there were 24,284 cases reported with 2,411 deaths from influenza and pneumonia, and 3,482 deaths from acute primary pneumonia. Contrary to the rule of thirty years ago, when the very young and the aged suffered most, the severest results were seen in young adults. No specific form of treatment beyond early taking to bed be appeared to be of any great value in the disease.

The recent report by the Minister of Health of Great Britain indicates that the cause of the epidemic is unknown. In a few months it was the cause of death in Europe and Asia alone of more persons than fell during the whole course of the Great War. The total deaths in England and Wales reached the number of 151,466. Much resulting loss of vitality is found in those who have recovered from the actual disease. The mortality is shown to have been the greatest, as might be expected, in crowded and insanitary districts. All competent observers are agreed that Pfeiffer's bacillus is associated with influenza, but is it not regarded as the actual cause. The report states:—

"The generation of a great pestilence, such as influenza or pneumonic plague, is dependent upon disturbance of social order, involving for large numbers of human beings the endurance of conditions of insalubrity, which afford for invading parasites a suitable field of modification. No impartial spectator can doubt that at the present time, and almost certainly for a generation to come, there will exist in many nations and over wide tracks of country precisely the type of misery which we suspect to be the appropriate forcing house of a virulent and dispersive germ."

Thus it will appear that an underfed people will continue to be more liable to outbreaks of this nature. In this country, where the means of sustenance, expensive as they are, are readily obtainable, we may expect to suffer less. The report emphasizes the necessity of avoiding overcrowding for the reason that the disease is transmitted in coughing and talking in the form of a fine spray and through dust and unclean hands. This is an additional reason for better housing and transportation conditions.

INFANTILE PARALYSIS.

It is painful to see walking about our streets unfortunate children and adults, one or more of whose limbs are deformed, and in consequence the whole body deranged by neglect in the treatment of infantile paralysis. This disease is a dangerously infective one. The family involved should be placed in quarantine, and the healthy children protected against infection as they are in, say, diphtheria or scarlet fever. The early treatment is usually in the hands of the family doctor. In order to lessen or prevent deformity the treatment requires *complete and absolute rest of the nerves and muscles*. No matter whether pain is present or not the head and spine should be at rest just as if an inflamed area were under treatment. If the muscles are sore, as will be indicated by pain on movement, no movement should be allowed. A sore muscle in such cases means an inflamed spinal cord and pressure upon nerve cells, which will subside in most cases if rest is enjoined. The family doctor may materially shorten the course of the disease and prevent infection by early rest and isolation of the patient. The risk of paralysis and future deformity can be greatly lessened by recognizing as a principle that the paralysed muscle must not be allowed to stretch. After the acute stage has been treated by rest, *without* the use of electricity, massage, or mechanical contrivance, any remaining paralysis may be limited by placing the treatment in the hands of a well-qualified orthopædic surgeon. But it is absolutely essential that *rest*, and rest only, is the only means of preventing future deformity and disability.

THE COMMUNICABLE DISEASES.

The common communicable (contagious) diseases, such as diphtheria, measles, whooping cough, scarlet fever, tonsillitis, mumps, etc., are regarded all too lightly by most people. The same is true of the "growing pains" of children. They are all infectious processes, and are at the bottom of many of the gravest disease of after life. For example, organic heart disease, one of the four great groups of disease causing our highest death rate, frequently may be traced to an attack of tonsillitis or "growing pains," the latter of which is the so-called rheumatism of childhood; attacks of scarlet fever, so mild as to show little or no rash and the slightest signs of illness in children, are frequently neglected, suffered to mingle at school or elsewhere with well children, and thus spread a virulent type of infection. These mild, and consequently neglected cases of scarlet fever are often the forerunner of grave kidney disease or of convulsions in pregnant women. Many parents think it advisable to allow their children to contract measles, whooping cough, etc., with impunity, ignorant of the danger of resulting lung disease.

Practically all the affections just named are more dangerous and more difficult of prevention than smallpox. Their immediate death rate (in this country) and the after-effects are infinitely greater than those of smallpox. Every reasonable means should be taken to protect children against every variety of infection.

THE FEDERAL DEPARTMENT OF HEALTH.

In 1919 a new and important chapter in the public health history of Canada was begun by the inauguration of a Federal Department of Health with a former official of the Provincial Board, Dr. John A. Amyot, C.M.G., as Deputy Minister. The plan of organization includes a Dominion Council of Health. The provinces are represented on the Council by their respective executive officers, and there are five additional members representing agricultural, labour, women's and public health educational interests. The scope of the new department embraces a wide range of subjects, not ordinarily within the control of the provinces. It is the intention to develop research laboratories. Undoubtedly the formation of the department will be of great value in the promotion of public health.

For upwards of half a century (1865-1920) previous to the formation of this Department the public health work of Canada had been carried on almost single-handed by the Director-General, Dr. Frederick Montizambert, C.M.G. Under his direction the quarantine and marine hospital service of both coasts and at Grosse Ile in the St. Lawrence was developed. The figure of this courtly gentleman has been conspicuous at the public health gatherings of North America since their earliest days. He has been President of both the American and Canadian Public Health Associations, and to his energy and ability much of the progress of public health work on this continent must be ascribed. The younger generations of us owe much to the fine public spirit, the wise counsel and the friendship of the Director-General who has just retired from the service. Dr. Montizambert is a notable example of the public servant found all over the British Empire, whose greatest reward is commonly to be found at the end of his career in a sense of duty well done.

The Canadian Public Health Association was organized in 1911 when the first meeting was held in Montreal under the patronage of His Royal Highness the Duke of Connaught, Governor-General of Canada. The Association has managed, despite the difficulties of war and the lack of financial resources, to have a meeting each year since that date. Its further prospects are bright; the membership is enthusiastic and increasing in numbers, and its objects, the welfare of preventive medicine in Canada, deserves success.

Each of the provinces has now a well-organized public health

department fully capable of dealing with sanitary problems of every description.

MEDICAL AND DENTAL INSPECTION OF SCHOOLS.

Adequate medical and dental inspection of schools is of the greatest importance from a public health point of view. In the absence of such inspection the future life of thousands of school children is handicapped by the fact that these children may be ill-nourished, suffering from decayed teeth, bad eyesight or defective hearing, etc. The school is the breeding ground for communicable diseases of all kinds. Many school premises, particularly in country districts, are insanitary, the closets are out of doors and filthy, the water supplies lacking or unfit for use. Often no facilities are provided for the washing of hands, and in consequence lunches have to be eaten from dirty hands, a ready means of conveying infection. Medical inspection of schools in Ontario, except in cities of 200,000 and over, is under the control of the Department of Education and of local Boards of Education. Medical opinion is strongly of the view that all public health activities are more efficiently and economically managed under the Health Department. In some countries—England for example—the public view is the same, and in that country medical inspection, after a long period under the Education Department, has within the last two years been transferred to the Ministry of Health.

Ten years ago the annual amount spent on public health and vital statistics was under \$50,000. In the present year the appropriations for these purposes are approximately \$550,000.

The foregoing pages briefly tell the story of public health progress since the earliest days of Ontario. Fair advancement has been made, particularly in recent years. Good laws have been enacted, and considerable appropriations voted. Much, however, remains to be done before our public health conditions can be considered satisfactory. The greatest necessity is the education of the public in the value of preventive measures. Municipalities are called upon to spend large sums from year to year in curbing outbreaks of smallpox, the need for which would immediately disappear if people would take the precaution to be vaccinated and to have their children vaccinated in infancy and at the end of seven years. The mortality from diphtheria has been greatly reduced by the use of diphtheria antitoxin. Not only this mortality, but the incidence of the disease would rapidly disappear if antitoxin were used at the onset of each case and in those exposed to the disease.

Ninety per cent. of our medical officers of health are part-time officers, and poorly paid at that. The public must learn that prevention of disease is purchasable and that, like every-

thing else, cheap service is generally the dearest in the long run. It cannot be expected that a busy medical man who is paid little or nothing for his services as medical officer of health, will risk treading on the toes of his patrons by enforcing laws and regulations, which are often regarded by the latter as an interference with their freedom. It is a case of serving two masters, his own interest or that of the municipality, which the Divine word declares impossible.

Prevention of disease is by far the greatest field of modern medicine. It is not only the most economical, but the most reasonable, successful and satisfactory plan of procedure in respect to disease. To be effective it is essential to have an educated public and a highly refined and educated profession of medicine. All the insidious attempts to foist upon the public untrained practitioners of medicine of every description are a fraud upon our people and a menace to the State. It is the paramount duty of every government to protect the health of its citizens. In order to carry this duty into effect medical education should be fostered in every way, money voted with a free hand for public health measures and education, and medical quackery suppressed in the most vigorous manner.

In concluding this review the writer desires to express his appreciation of the hearty co-operation of every member of his staff, of the chairman and members of the Board, of the medical societies and individual members of the medical profession, to many of whom he is indebted for friendly counsel, and to the various Ministers of the Government under whom he has had the honour to serve.

CONTROL OF MILK SUPPLY

The control of the milk supply for any municipality is almost as important as the control of the water supply.

During the year an inquiry was sent to all the urban municipalities asking for information about the milk supply, whether it was pasteurized, the number of dealers, etc. The returns show that with respect to our cities practically every dealer has one or more pasteurizing plants and that in many municipalities all the milk is pasteurized or handled under similar conditions as for certified milk.

Every municipality should have a milk by-law, including provision for pasteurization. The need of milk by-laws is apparent as one realizes how extremely difficult it is to supervise the handling of the milk from the dairy herd to the municipal dealers, no matter how often the inspector may visit the farmers' premises. Unless the dairyman uses clean methods, the handling of the milk will introduce objectionable dirt and disease, such as tuberculosis. The supply can, however, be protected by pasteurization, which is a process of heating the milk to a temperature that kills all the objectionable bacteria, and the milk if then cooled and bottled remains free of disease and keeps longer. Many of the big distributors pasteurize for no other reason than because it helps to preserve the milk during the summer.

MILK REPORTS FOR MUNICIPALITIES IN ONTARIO

R.B.H. 5

Cities, Towns, &c.	County	Population Total Year	No of Milk By-Law	Percentage Pasteurized 1920	No. of Pas- teurization Plants	No. of Licensed Vendors	Amt. spent Enforcing By-Law
Belleville.....	Hastings.....	12,240	922	25	1	5	\$ 50.00
Brantford.....	Brant.....	32,159	1,559	88	5	9	\$ 1,500.00
Chatham.....	Kent.....	15,182	608	33	2	6	L.B. of H.
Fort William.....	Thunder Bay.....	19,886	1,413	....	3	13	Do
Galt.....	Waterloo.....	12,434	1,163	100	3	3	Do
Guelph.....	Wellington.....	17,032	1,112	60	1	21	\$ 65.00
Hamilton.....	Wentworth.....	108,143	1,192	95	15	22	1 Insp. & Asst
Kingston.....	Frontenac.....	23,261	33	0	0	73	\$ 1,200.00
Kitchener.....	Waterloo.....	21,056	.....	75	3	9	.....
London.....	Middlesex.....	59,100	4,104	50	2	96	\$ 1,400.00
Niagara Falls.....	Welland.....	14,207	99	80	2	6	500.00
Ottawa.....	Carleton.....	107,732	4,418	95	3	8	4,800.00
Peterborough.....	Peterborough.....	21,230	1,795	50	1	73	L.B. of H.
Port Arthur.....	Thunder Bay.....	15,094	451	10	2	32	.....
St. Catharines.....	Lincoln.....	19,195	2,474	50	1	20	\$ 200.00
St. Thomas.....	Elgin.....	17,759	2,347	21	1	25	17 40
Sarnia.....	Lambton.....	12,649	402	61	1	13	500.00
Sault Ste. Marie.....	Algoma.....	21,095	926	70	1	12	.....
Stratford.....	Perth.....	18,106	1,822	50	2	9	.....
Toronto.....	York.....	499,278	5,791	99.66 + .34 certified	62	62	19,285.62
Windsor.....	Essex.....	31,629	1,899	50	4	150	1,500.00
Woodstock.....	Oxford.....	10,126	572	95	1	3	50.00

REPORT OF DIVISION OF VENERAL DISEASE TO DEC. 31 1920

To the Provincial Board of Health.

I have the honour to submit the following report of the Division of Venereal Diseases for the year ending December 31st, 1920.

In the latter part of 1919, systematic treatment and examinations of the prisoners of the Mercer Reformatory and the Burwash Industrial Farm was begun.

During the past year a Division of Venereal Diseases was established and a definite effort has been made to check the spread of Venereal Diseases.

As the work of the Division increased, the personnel increased. The Division now has three physicians, one Social Service Nurse and one stenographer as a staff.

The amount of money voted by the Provincial Government for V. D. work was \$115,000 of which \$57,473.68 was advanced by the Dominion Government.

The work of the Division naturally fell into two sections:

1. Diagnosis and treatment.
2. Education of various branches of the public.

The Division first determined to work out an efficient scheme of diagnosis and treatment for all those infected, believing that the educational part of the work would proceed more rapidly if definite centres for diagnosis and treatment were available.

1. (a) *Diagnosis:*

There are four Provincial Laboratories where Wassermanns, dark field examinations for spirochaetes, and examinations of smears for gonococci are carried out free of charge. These laboratories are located at Toronto, London, Kingston and Fort William. Two new laboratories will shortly be in operation at North Bay and Sault Ste. Marie.

(b) *Treatment:*

(1) *Phenarsenamine—*

There was a serious need of arsenical products at a reasonable price, so after a great deal of difficulty, the Provincial Board of Health obtained a limited license to manufacture Phenarsenamine (corresponding to 606) and to supply it to local Medical Officers of Health, venereal disease clinics, hospitals and institutions for the free treatment of patients unable to pay. This partial license has been a great help in the V. D. campaign and it is hoped that the terms of the license may be extended during the present year. Phenarsenamine is also being sold at a very low price by the Provincial Board to other Provinces.

(2) *Free Venereal Disease Clinics—*

The following proposition has been placed before the local Boards of Health and the hospitals of the larger cities:—

Special Treatment Clinics

It is the intention of the Provincial Board of Health to assist local Boards of Health to establish special clinics for the treatment of venereal diseases. The Board feels that the choice of a site for the special clinic or clinics in the various municipalities should be left to a certain extent in the hands of the local authorities who understand local conditions. The Board would suggest, however, that where facilities already exist as in the case of hospitals, etc., other things being equal, these facilities should be used. The Board will afford the following assistance to each clinic established.

- (1) For the purchase of furnishings and apparatus for a special clinic, \$1,000.

(It is thought that the cost of the apparatus and furnishings as per Schedule A, will not exceed this amount).

Where a clinic is already in existence and up to the standard (see Schedule A) the same financial assistance will be given.

- (2) Towards payment of a social worker, \$500 yearly.

(3) For each out-patient treatment for gonorrhea, 50c. For each out-patient treatment for syphilis, 50c. (No more than one treatment each day will be paid for). For each out-patient treatment for syphilis in addition, free "Salvarsan" will be provided—as soon as the Board is in a position to furnish its own product.

(4) In the case of patients treated in the hospitals the sum of 25c in addition to the foregoing grants will be paid to the hospital for each day of indoor treatment up to three months, at the end of which time the indoor grant will cease.

(5) Standard record forms for the use of these special clinics will be supplied by the Board.

(6) \$500 yearly to physician in charge of clinic.

In return for this assistance the Board will require that the clinic be kept up to a certain standard as follows:

- (1) The special clinic shall be for the treatment of Venereal diseases.
- (2) The apparatus and furnishings for the clinic shall be as follows:— (see Schedule A).
- (3) The personnel of the clinic shall be:
 - (a) One specialist in venereal diseases, who shall be appointed by the hospital if the clinic is in connection with a hospital, and by the local Board of Health in other cases. This officer must also be satisfactory to the Provincial Board.
 - (b) Such Medical assistants as may be necessary shall be appointed on the same basis.
 - (c) One full time social worker who shall be a graduate nurse.
 - (d) One clerk, if the clinic is treating more than forty cases per week.
 - (e) One male orderly.
 - (f) If possible, one under graduate nurse to assist in the clinic.
- (4) All treatment in the clinic shall be free.
- (5) At least one night and two day clinics shall be held per week. (This may be modified on agreement).
- (6) Separate hours shall be set aside for men and women in the clinic; also if possible, separate hours for the treatment of gonorrhea and syphilis.
- (7) Weekly reports will be required on forms supplied by the Board.
- (8) The clinic, including its records, apparatus, method of treatment, etc., shall be open to inspection by the Board.
- (9) The municipality will be expected to advance an amount for upkeep of the clinic or clinics which shall be approximately equal to the amount advanced by the Board. (See Section 14, SS 1 and 2. Venereal Diseases Prevention Act).
- (10) The social service nurse shall follow up cases outside the clinic to see that all patients continue treatment and also that any possible contacts are examined.
- (11) Accounts should be rendered at the end of the month and will be paid on the Board's certificate.
- (12) The Board reserves the right to modify these rules if such should, in the interest of the clinic, be deemed necessary.

Local Boards of Health and hospitals desiring to take advantage of this offer are requested to fill out and return the accompanying application form to the Board.

Several cities have taken advantage of the offer, and the following clinics have been established and are now functioning:—

- (1) Toronto General Hospital, Toronto.
- (2) Hospital for Sick Children, Toronto.
- (3) Grace Hospital, Toronto.
- (4) Women's College Hospital, Toronto.
- (5) St. Michael's Hospital, Toronto.
- (6) Western Hospital, Toronto.
- (7) Victoria Hospital, London.
- (8) Hamilton General Hospital, Hamilton.
- (9) Essex Border Municipalities Board of Health, Windsor.

At the clinics patients unable to pay for their treatment receive treatment and advice free of charge. These clinics are already catering to a very large number of patients and are all growing rapidly. Several other cities are considering the establishment of V. D. clinics and there will undoubtedly be several others opened very shortly.

(3) *Treatment in Rural Centres.*

In the towns, villages and townships, V. D. clinics were not thought advisable on account of the necessary publicity that would result. In order to carry out the treatment of patient unable to pay their own physicians, a scheme was devised by means of which a specialist from the Department proceeds to a municipality on request of the local Medical Officer of Health and supplies apparatus and Phenarsenamine for treating a syphilitic case. This specialist gives the first treatment and leaves the apparatus and Phenarsenamine for a local physician to carry on the treatment. In this way besides treating the case, the medical men are being educated in the latest methods of treating venereal diseases. A great number of trips have been made during the past year and over 40 sets of apparatus are at present being used in the smaller centres. The necessary distilled water and sodium hydroxide is being sent out weekly by the Laboratory in Toronto if required and the entire scheme is much appreciated by medical men in these centres.

(4) *Treatment in Institutions.*

The diagnosis and treatment of Venereal Diseases in Government institutions has been a very important part of the work. Treatment at the Industrial Farm, Burwash, Fort William Industrial Farm and the Mercer Reformatory has been carried out by the specialists of the

Division with excellent results. The treatment in several of the jails and in the Toronto Jail Farm has been supervised. The specialists of the Board have visited almost all of the Ontario Hospitals to point out the latest methods of treatment and to supply the hospitals with Phenarsenamine and the necessary apparatus for the treatment of syphilis.

2. Education:

(a) Literature for various classes of the public has been printed and supplied on request or through the local Medical Officers of Health, V. D. clinics or voluntary organizations. In this way the dangers of Venereal Disease have been pointed out to many people. Further literature is issued from time to time when considered necessary or advisable.

The following pamphlets are printed and available on request:—

V. D. 1—Facts on Venereal Disease—General.

V. D. 2—Facts for young men.

V. D. 5—Facts for girls and young women.

V. D. 9—Short Description of Venereal Diseases.

V. D. 10—Instructions to Those Having Venereal Disease.

A small booklet by Dr. J. H. Stokes, of the Mayo Clinic, Rochester, has been supplied, free of charge, to all physicians in Ontario. This is a very excellent book and has excited a great deal of favorable interest and criticism among the medical profession.

Circular letters have been written from time to time to physicians, druggists and other groups as required.

Circular letters to physicians have included those concerning the reporting of venereal diseases, venereal disease treatment, treatment of free patients unable to pay, methods of administration of Salvarsan, and so on.

Films on the latest methods of treatment of gonorrhea and syphilis have been purchased and are being shown to physicians. Films on the dangers of Venereal Diseases have been shown in Ontario with the approval of the Provincial Board of Health with very good results. There are now films available for use in Ontario for general information if requests are made for them. Lecturers and speakers on venereal diseases are furnished on request. Slides depicting some of the dangers of venereal diseases are also available.

A very interesting exhibit along V. D. lines was held in the Provincial Board of Health Exhibit at the Toronto Exhibition. An attractoscope with slides, posters and pamphlets were used and excited much favorable comment.

(b) Social Service Nurse:

A Social Service Nurse has been secured whose duty is to inquire into the social history of inmates who are suffering from Venereal Disease in Government institutions. She also supervises the work of the Social Service Nurses in the various free clinics. She works in co-operation with the Ontario Hospitals in following contacts of cases of syphilis and gonorrhea admitted to these institutions. She is available for lectures to women's organizations and general educational work along V. D. lines in any community in Ontario. She has been able to collect a great amount of information bearing on the whole venereal disease situation.

The whole aim of the Division is to provide adequate treatment for all patients infected with Venereal Disease, to see that any person infected takes the necessary treatment, to point out the dangers of neglect of treatment in those infected and to disseminate information on how infection may be avoided. Successful results will not be attained quickly or without effort and the co-operation of everyone is earnestly desired in order that the spread of gonorrhea and syphilis may be checked.

R. R. McCLENAHAN, M.B.,

Director, Division of Venereal Diseases.

DIVISION OF INDUSTRIAL HYGIENE

ANNUAL REPORT

Nearly six months has elapsed since the inception of the Division of Industrial Hygiene. A plan of organization has been evolved, based on experience of similar activities in England and the United States, and adapted to meet local conditions as indicated by knowledge previously acquired in the course of a representative survey of industrial health conditions in Toronto in 1919 and the early part of 1920. It is considered that detailed information regarding industrial health in Ontario is a necessary preliminary to determination of the problems requiring special investigation. The results of such investigations should indicate the presence or otherwise of suspected hazards, and, when such exist, adequate means for prevention.

To avoid repetition of work of this nature which has already been conducted in other places, and for the convenient use of assistance which may be available for this work, a detailed index of the literature on the subject has been prepared and is kept up-to-date. A compilation of all the industrial health legislation of Canada, Great Britain, and the United States has been made. Abstracts of literature dealing with certain selected industries as to processes, industrial health hazards and means of prevention have been completed.

In order that an effective educational program may be commenced, an attempt has been made to determine the primary cause of certain industrial hazards known to exist, which point to misinformation on the part of employers rather than lack of desire to eliminate such hazards. Such a program should reach employer and employee alike.

The need for close co-operation with the Factory Inspection Division of the Department of Labour which deals with sanitation and accident prevention aspects of industrial hygiene is already apparent. The information acquired by factory inspectors over a period of years should be of considerable value in furthering other aspects of this subject.

At the moment, arrangements have been made with the Pharmacological Department of the University of Toronto, through Dr. Henderson, for an investigation to determine the health hazard involved in the use of the spraying machine for applying paint, varnish, etc.

All of which is respectfully submitted.

J. G. CUNNINGHAM B. A., M. B., D. P. H.

Director, Division of Industrial Hygiene

DIVISION OF PUBLIC HEALTH EDUCATION

Annual Report, January 1st, 1921

The establishment of the Division of Public Health Education, in September 1920, marked one of the Provincial Board's forward steps in Public Health activity in this Province.

On being appointed Director of this Division, I had no local precedent for the intensive work to be carried on, so outlined plans of procedure following Departmental Instructions and after observing Public Health Educational methods adopted in the United States and England.

Realizing the importance of the country newspaper as a medium for diffusing information of this kind, arrangements were made with the Wilson Publishing Company, Toronto, to publish weekly articles on Public Health matters so that the wide circulation of these papers throughout the Province might bring the articles to the attention of a large percentage of the rural population. The value of this course has already been demonstrated by the inquiries on all kinds of health topics coming in almost daily from readers of these papers not only in Ontario but also from Manitoba, Saskatchewan, etc.

The value of the moving picture films that have been exhibited by the Provincial Board of Health for some years past, has been fully appreciated, but in my opinion the subject matter can be brought home to the people more effectively if the picture is supplemented by talks on Public Health, emphasizing the particular needs of each locality and the prevalence there of any forms of communicable disease.

The progress of Public Health in Ontario has received a great stimulus through the work of the Public Health nurse who started their demonstrations and Baby Clinics at various points throughout the Province last Fall. It has been my privilege to speak at several Public Meetings where these demonstrations are being launched, and in every case the pressing need or the appointment of a community nurse has been brought home to the people. Among the places at which I have addressed meetings in connection with the work of the Public Health nurses are Orillia, Woodstock, Innerkip, Ingersol, Dundas, Beeton, St. Catharines, Niagara Falls, Rockland, Whitby, Fort William and Kenora. In every one of these places visited, the public showed the greatest interest in the work outlined, and readily appreciated its potential value in lowering the infant death rate and building up a better class of citizenship for the future. In no instance have I found a locality where the progressive citizens were not in total harmony with the proposed activities of the Provincial Board of Health. In this connection the Women's Institutes are largely responsible for the intelligent interest shown and their work deserves the highest commendation. Moreover it is nearly always the Women's Institutes who make the preliminary arrangements for Public Health Meetings and demonstrations in rural districts. To provide material for reading and discussion at the regular meetings of the Women's Institutes I am sending them monthly a short pamphlet on timely Public Health topics for these occasions.

The question of finance is, I find, the only serious impediment in the carrying of all the reforms the Provincial Board is advocating. This is particularly true with regard to the appointment of a Public Health nurse, where some of the municipalities in which such a nurse is needed most, are saddled with a high tax rate. Education is required to show the citizens generally, and more particularly the local councillors that the money spent on a community nurse is more of an investment than an expenditure, owing to the preventive measures she carries out.

The subject of communicable disease appears to be of great concern to many people, judging by inquiries that come in regarding the precautions necessary to prevent infection.

Whenever local measures are adopted for the carrying out of a Public Health programme, the success of the scheme depends in great part on the activity of the local M.O.H.

In this connection it might be well to state that the small remuneration granted Medical Officers of Health in many rural districts is a deterrent to public health progress, as a Medical Officer of Health who has to depend on private practice, often cannot afford to antagonize citizens by insisting on the carrying out of seemingly trifling sanitary measures, not to speak of inaugurating and carrying out new schemes. The local Medical Officer of Health should, in my opinion, receive more financial consideration, if the greatest progress is to be made in Public Health work.

In order to diffuse general information regarding the programme the Public Health Nurses propose to carry out in their demonstrations and clinics throughout the Province, I prepared a pamphlet entitled "Health Promotion and Disease Prevention," giving details of this work and other activities of the Provincial Board of Health. Ten thousand copies of this pamphlet have been printed for general distribution.

J. J. MIDDLETON M.B., D.P.H.

Director, Division of Public Health Education

REPORT OF THE LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH

To the Chairman and Members of the Provincial Board of Health.

I have the honour to submit herewith the following tabulated statements, summarizing the work of the Laboratories for the year 1920. The very remarkable increase in the number of specimens examined is noted in the reports of the main laboratory at Toronto, and also in those of the older branches at London and Kingston.

The newer branches at Fort William, Sault Ste. Marie and North Bay are justifying their existence in the service rendered to the people in that section of the Province. The demand for laboratory products continues to increase. The general advance in the work is shown by the following table

SPECIMENS EXAMINED IN THE LABORATORIES at 5 Queen's Park Toronto

	1911		1919		1920	
<i>Diphtheria</i> (swabs).....		1068		2758		10119
Release from quarantine.....	173		2005		3192	
Positive.....	91		571		1124	
Negative.....	82		1434		2068	
<i>Diagnosis</i>	895		2453		6927	
Positive.....	402		536		1324	
Negative.....	669		1917		5603	
<i>Tuberculosis</i> (sputum).....		1 650		2179		2154
Positive.....	402		407		342	
Negative.....	1248		1772		1812	
<i>Typhoid</i> (blood).....		749		782		992
Positive.....	70		87		176	
Negative.....	679		695		816	
<i>Syphilis</i> —						
Colloidal Gold Reaction.....				8		109
Wasserman Reaction.....				6659		13013
Very strongly positive.....			1129		1659	
Strongly Positive.....			174		245	
Positive.....			444		958	
Negative.....			4912		10151	
<i>Spirochaeta Pallidum</i>				37		36
Positive.....			11		8	
Negative.....			26		28	
<i>Gonorrhea</i>				973		1110
Positive.....			242		275	
Negative.....			731		835	
<i>Rabies</i> (brains of animals).....				23		17
Negri bodies present.....			4		7	
Negri bodies absent.....			19		9	
<i>Milk</i>		168		150		131
<i>Water</i>		1 718		2311		2089
Bacteriological.....	1668		2271		2047	
Chemical.....	50		40		42	
<i>Liquor</i> (for license dept).....		241		595		543
<i>Miscellaneous Specimens</i>		86		319		207

Rabies appears to be well under control, as indicated by the small number of diagnostic examinations made, and the few Pasteur treatments administered.

The work on arsenical preparations for the treatment of Syphilis has passed from the stage at which it is entirely research and experimental.

One product of the laboratory, identical in composition with the German-made Salvarsan is distributed under the name "Phenarsenamine." Up to December the 31st, 1920, several thousand doses of this drug were used in the various clinics.

Research work was also developed in serology with a view to determining the value of the complement fixation test in Gonorrhea. It is thought that this test may ultimately prove of value in institutional work.

Respectfully submitted,

H. M. LANCASTER,
Director of Laboratories.

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis							
	Release		Diagnosis						Wassermann Reaction						Treponema Pallida	
	+	-	+	-	+	-	+	-	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	-	+	-	
Algoma—																
Blind River.....										1				1		
Bruce Mines.....				4		5							1	2		1
Cutler.....		2	1	3		1		1								
Foleyed.....			1	2		1		1		1		1		4		1
Hearst.....				2	2	6		3		2				1		
Hornepayne.....													1			
Nesterville.....						1										
Sault Ste. Marie.....	1		1	5	6	19	2	5		23	4	9	59			
Sowerby.....						1										
Spanish.....																
Steeleton West.....				1						1						
Thessalon.....				1	1											
Brant—																
Brantford.....		8	2	7	11	52	3	14		27	3	14	75			7
Burford.....				1												
Cainsville.....			2											1		
Ohsweken.....	1	2	1	1	1					3				3		
Paris.....				2		1		3		3	1			8		
St. George.....	2	5	1	3						1				2		
Scotland.....					1	1		1								
Bruce—																
Chesley.....		3	4	3	2	4		4								
Hepworth.....							1									
Kincardine.....				3												
Lion's Head.....				3												
Lucknow.....			1	2												
Mildmay.....																1
Paisley.....								1								
Port Elgin.....				8		15		3								
Ripley.....				1	1											
Southampton.....								1								
Tara.....						1		1								
Teeswater.....								1								
Tiverton.....						1								1		
Walkerton.....		1	2			3		3						3		
Wiarton.....			3	4	9	20	1	3		1				1	1	
Carleton—																
Ashton.....				1		1		1								
Carp.....		3	2	2		1								3		
Kars.....						1										
Manstick.....	1			1		2										
North Gower.....																
Ottawa.....				3		4	3	12		231	19	99	1112			
Richmond.....					1	2										
Westboro.....										2				1		
Metcalfe.....				2		2		5								
Dufferin—																
Grand Valley.....				1	1	1	1	2								
Orangeville.....		2	2	5	1	4										
Shelburne.....			1	9				4								

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

[illegible]

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis						
	Release		Diagnosis						Wassermann Reaction				Treponema Pallida		
	+	-	+	-	+	-	+	-	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	-	+	-
Dundas—															
Cannamore . . .		4				1									
Morrisburg . . .				3	3	16	4	13		1				7	
Newington . . .				1	1	1	2	3						1	
Winchester . . .								1							
Durham—															
Bethany . . .			1	6		4	1	5						1	
Bowmanville . .	33	58	42	99	2	14	2	11		1				6	
Enniskillen . . .	3	7	2	4		3									
Janetville . . .															
Millbrook . . .				3		3	2	7						1	
Nestleton . . .															
Orono . . .			3	2	1	7									
Pontypool . . .						4		2							
Port Hope . . .	7	2	8	6	2	22		5		3				4	1
Elgin—															
Bayham . . .						1									
St. Thomas . . .															
Staffordville . .						1								1	
Essex—															
Amherstburg . .						6		1							
Comber . . .								1							
Essex . . .		1		1	3	8		3						2	
Ford City . . .						1				1				1	
Kingsville . . .	5	7	6	5	2	4		3							
Leamington . . .	2	12	2	16						3		4		2	
Ojibway . . .															
Sandwich . . .								1		1		1		2	
Tecumseh . . .						1								3	
Walkerville . . .								1				1		3	
Windsor . . .				1		12				74	20	36	288		2
Woodslee . . .					1										
Frontenac—															
Kingston . . .														1	
Portsmouth . . .															
Glangarry—															
Alexandria . . .			1	2	2										
Apple Hill . . .			1	1	2	4		1							
Dalhousie Mills .						6		1							
Dalkeith . . .				1		2									
Dunvegan . . .								1							
Martintown . . .	3	3				1									
Maxville . . .			3	3	1	7		4						1	
Williamstown . .			1	1											
Grenville—															
Kemptville . . .				1		2		1						1	
Merrickville . . .				1		1									
North August . .				1											
Prescott . . .						2		3		1				2	
Grey—															
Annan . . .						1									
Chatsworth . . .		1	1	9	1	5								1	
Clarksburg . . .								2							

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tubercu- lous Sputa	Typhoid Bloods		Syphilis								
	Release		Diagnosis					Colloidal Gold Reaction	Wassermann Reaction				Treponema Pallida			
	+	-	+	-					+	-	Very Stron- gly Positive	Strongly Positive	+	-	+	-
Grey																
Dromore						1					1					
Dundalk				2		1		1						1		
Durham				2		11	2	2						1		
Flesherton			1	5		4				1				6		
Hanover				4	1	6	1	13		1				2		
Heathcote					1			1								
Holstein								1								
Markdale		1				1		1								
Maxwell			2	2			1	2								
Meaford	2	5		2		7	4	7						5		
Owen Sound	14	13	13	19	9	39	7	18		4	4	4	27			
Priceville					3	3										
Shallow Lake						4										
Thornbury						1										
Haldimand—																
Caledonia				2		2		3								
Canfield				1	1	1		2								
Cayuga						2										
Dunnville	3	5	6	6		7	1	17		1				3		1
Fisherville			1	3												
Hagersville	1		4	2			2	3								
Jarvis	1	3	6	2		7		1						1		
Selkirk	4	3	3	2		2								4		
Haliburton—																
Haliburton	1	9	4	15	1	22	1	6		1		3	45			2
Minden			1		1	4										
Halton—																
Acton	1	2	2	2		3										
Bronte																
Burlington	8	20		10	2	2	2	6				1		2		
Georgetown	14	25	2	30		2		2		1				1		1
Milton				5	3	10		1		1				2		
Norval																
Oakville	9	6	2	8		2		4		2				6		1
Tansley																
Hastings—																
Bancroft	3	6	4	3		2					1			1		
Belleville	13	24	81	331	3	5	1	13	1	1		3	13			
Deseronto		2	1	2		1		2						1		
Eldorado				1		1		2								
Frankford	2	3		3	2	3										
Madoc				2	2	5		3						1		
Marmora	12	5	3	7		2		1						1		1
Roslin		1	1	1								1		1		
Springbrook			1	18												
Stirling						1										
Trenton	2	3	2	3	2	6		3		3	1		10			1
Tweed								1								
Huron—																
Auburn						1										
Blythe							1									
Brussels						1	1	3								
Clinton														1		
Crediton	2	6		1	1	1										
Ethel	4	1	4			3		1								
Exeter		3		3		3		1						1		

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk								Waters				Total for Year	
+	-	Animal	Negri Bodies		Animal Inoculations	Food Content		Preserv- atives	Bacteriological				Extraneous Matter	Number of Milk Samples	Chemical		Liquors for License Department		Miscellaneous Specimens
			+	-		Fats	Total Solids		+	-	Tuber- cle Bac	+			-	Plus Cells				Count	Chemical	Bacterial
																			2
																			5
																1			20
		1														4			23
																5			34
																			2
		1																	1
																			4
																2			9
		2	19													19			51
																28	4	1	225
																			6
																			4
																			1
																1			8
		1dog	1neg																5
																2			5
																1	16	1	69
																2			6
																2			14
																2			23
																			18
		4	11																125
		1																	7
		1	4														5		20
																1			1
		1	2													19			74
																2			89
														1		1	3	5	27
																	2		2
																	2		78
		3													4		2	3	3
																26			
																3			
																5			25
		1	2													23	5		518
																			12
																2			6
																1			14
																12			25
		2														13			48
																			5
																			19
																		1	2
		1														3			41
		1dog	1neg													12			14
																			1
																			1
																1			6
																			1
																			11
																			13
		1																	12

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis						
	Release		Diagnosis						Colloidal Gold Reaction	Wassermann Reaction				Treponema Pallida	
	+	—	+	—	+	—	+	—		Very Strongly Positive	Strongly Positive	+	—	+	1 F—
Huron															
Fordwich															
Goderich	6	4	2	13	2	14	1	15		2			8		
Gorrie															
Kentail							2								
Seaforth					1	1	1		2						
Wingham					6	1	7						3		
Wroxeter									2						
Kenora—															
Keewatin								1							
Kenora													1		
Sioux Lookout										1			2		
Kent—															
Arkwood															
Blenheim					1		1	2					1		
Chatham			1	1	5	4	14	1	3		2		3	25	1
Merlin													1	3	
Ridgetown															
Tilbury				1			6				1			1	1
Wallaceburg				1	1										
Wheatley		1													
Whitebread															
Lambton—															
Corruna															
Florence								1							
Forest	3			1	3			1							
Inwood								1							
Petrolia						2					1				
Port Lambton						1									
Sarnia				5	7			9	2	8	1	1		13	
Thamesville				1			1	1							
Thedford				1	2			1		3					
West Lambton															
Wyoming								1		1					
Lanark—															
Almonte	6	17	11	10	2	3					1				
Carleton Place				2	2					2				2	1
Lanark—Con.															
Dalhousie Lake															
Middleville								4							1
Pakenham			4	2	6			8		1		1		2	
Perth			1	2	8	1	10		3					1	
Smith's Falls	9	4	16	10			2								
Leeds—															
Athens					1										
Brockville	1	2			11	6	11	2	1		5		3	11	
Elgin					1		2		1						
Lansdowne					1										
Lyn					1		2		1						
Lennox and															
Addington—															
Napanee	1			1	1									1	
Tamworth	1	2			2									1	
Lincoln—															
Beamsville			1	4	2		1		3					3	1
Grimsby	3	1	7	10	1	1	5	1	1		1				
Jordan					1		5	3	2						

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*[illegible]

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis							
	Release		Diagnosis						Wassermann Reaction						Treponema Pallida	
	+	-	+	-	+	-	+	-	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	-	+	-	
Merriton.....			2	3	1	2		2								
Niagara-on-the-Lake.....								1								
Port Dalhousie.....					1											
Queenston.....				1		1										
St. Catharines.....	36	158	13	34	9	48	4	13		35	4	33	205			
Smithville.....				1				1								
Manitoulin—																
Gore Bay.....				1												
Little Current.....					2	3										
Manitoulin.....																
Mindemoya.....																
Middlesex—																
Ailsa Craig.....					1											
London.....										1	1		1			
Park Hill.....					1			1								
Strathroy.....						1										
Muskoka and Parry Sound—																
Bala.....				1												
Bent River.....																
Bracebridge.....				6	2	8		2						8		
Burk's Falls.....				7	2	10		3	1							
Byng Inlet.....																
Callander.....			1					2								
Depot Harbour.....														3		
Dunchurch.....																
Gravenhurst.....	3	4	2	3				2				1	26			
Huntsville.....			1	4	5	5	1	5					3			
Kearney.....				1												
Maganatawan.....																
Otter Lake.....																
Pakesley.....				1				1		1			3			
Parry Sound.....			2	7	6	22	5	8		2		5	25			
Port Carling.....						2										
Powassan.....	6	7	6	4		1	1	3								
Rosseau.....					1			2								
Sanitorium P.O.....														1		
Severn Bridge.....			1			2										
Sprucedale.....						2										
Sundridge.....	1		1	4			9	4	12				2			
Torrance.....																
Trout Creek.....								1								
Nipissing—																
Cache Bay.....						1										
Mattawa.....					1											
Milnet.....																
North Bay.....	24	61	30	34	4	19	6	12		10	2	4	41		2	
Sturgeon Falls.....	2	21	3	8		6		1		5		1	9			
Norfolk—																
Delhi.....			2	17	1	10		1		1			10			
Port Dover.....	1	2	2	3		6		2					1			
Port Rowan.....			1	3	1	5		1		2						
Simcoe.....		4	5	36	1	14	1	1	1	9	1		13			
Waterford.....				6		3	1						1			

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*[illegible]

REPORT FROM BRANCH LABORATORIES OF THE PROVINCIAL BOARD OF

Municipalities	Diphtheritic Swabs				Tubercu- lous Sputa		Typhoid Bloods		Colloidal Gold Reaction	Syphilis				Treponema Pallida	
	Release		Diagnosis							Wassermann Reaction					
	+	-	+	-	+	-	+	-		Very Strong- ly Positive	Strongly Positive	+	-	+	-
Northumberland															
Brighton		4	2	9	4	6		1		1	2		9		
Campbellford		2		5	4	4		2		1			2		
Castleton						1		1							
Cobourg	1	16	7	20	3	13	3	10		3		2	12		
Colborne								1					1		
Cold Springs													3		
Gore's Landing						1									
Grafton		2				1									
Hastings		2				1		1							
Roseneath	4	3	1	1		1									
Warkworth					1	5							1		
Ontario—															
Beaverton		2	3	4				1							
Brooklin				2		4				1			4		
Brougham						1									
Cannington				3		4		2							
Claremont				3		1		1							
Goodwood								1							
Longford Mills															
Oshawa	53	222	101	1514	6	37	2	13		9		2	25		
Pickering					2	4		1							
Port Perry	14	25	4	5	1	7		3		1					
Sunderland				1		2	1	7							
Uxbridge			1	5	2	4	1	5		2		2	5		
Whitby		1	2	13		5		1			1	1	4		
Oxford—															
Burgessville				2											
Drumbo			1	1											
Eastwood													1		
Embro			1			1		1							
Ingersoll				3	1	7		5							
Norwich			1	2	1	3		2					2		
Otterville					2	8		3					3		
Plattsville					2	5		3		1		1			
Tavistock						1		1							
Tillsonburg		1	1	2	2	13		5		2		2	6		
Woodstock	6	12	17	17	2	37	1	8		3			6		
Peel—															
Alton				1		1							1		
Bolton	11	18	1	10	1	6		1					1		
Brampton	1			4	4	6									
Burnhamthorpe						3		1							
Caledon				2		2		1							
Caledon East				1		1									
Clarkson						1									
Cooksville			1	1											
Inglewood						2		2							
Lorne Park															
Palgrave			3	6											
Port Credit	2	4		5	2	3		1							
Streetsville								1							
Perth—															
Atwood				2		4		1							
Listowel	2	4	3	3	4	7		6							
Milverton						2									
Mitchell	1	1	3	6	1	1		1		1		1	1		

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk										Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
						Food Content						Bacteriological									Extraneous Matter	Number of Milk Samples
		Animal	+	-	Animal Inoculations	Fats	Total Solids	Preservatives	Tuber- cle' Bac	+	-	Plus Cells	Count							
+	-														Chemical	Bacterial				
8	8															2			56	
1																5	1	1	28	
	1															3			5	
																2	1		94	
1													1		10				14	
																			3	
																1			1	
																			4	
																			4	
																			10	
																			7	
																			10	
	1															5			17	
																4			1	
																			13	
																			5	
																1			1	
42	28													14		66	5	1	2140	
																10			17	
1	3															6			50	
																3			14	
	3															8			38	
																5	4		37	
																			2	
																			2	
																			1	
																			3	
																			16	
																			11	
																11			27	
																3		2	12	
																1		1	7	
	2															4	1		36	
																			116	
																		2	5	
	2															10			61	
														3		1	5		24	
																			4	
															1	3			9	
																			2	
																2			3	
																1			3	
																			4	
																			3	
																3			3	
4	5	1														2			21	
																6			23	
																			1	
																			7	
														1		2			32	
																			2	
2																2			21	

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis							
	Release		Diagnosis						Colloidal Gold Reaction	Wassermann Reaction				Treponema Pallida		
	+	-	+	-	+	-	+	-		Very Strongly Positive	Strongly Positive	+	-	-	+	
Perth—Con.																
St. Mary's						1		1								
Stratford	1	1	5	5	3	12		2								
Peterborough—																
Bailieborough			1	4		2	3	3								
Havelock				3												
Keene				1		1										
Lakefield	2		1	1		2		3								
Peterborough	46	62	25	55	10	32	2	13		12	4	4	146	1	1	
Prescott—																
Alfred																
Caledonia Springs																
Hawkesbury			4	3	4	14	1	8					2			
St. Eugene						1										
Vankleek Hill		1		2	2	6		2								
Prince Edward—																
Bloomfield			4	3												
Consecon	1	5	5	16	1	1										
Pictou		2	3	7	3	1	2			2						
Wellington			2	1	2	4					1	1	1			
Rainy River—																
Emo				1												
Fort Frances						2				1						
Rainy River						1										
Renfrew—																
Arnprior			1		1	6								4		
Beachburg			1	2	1	6								1		
Calabogie								1								
Cobden	6	15	2	13		9		1		1						
Douglas				1												
Eganville		1				2		2								
Forester's Falls				1		2										
Pembroke		2	1	5		1		2		1			4			
Renfrew		1		3		1	1	2								
Russell—																
Bourget	1	3	3	9	1	9										
Casselman						1										
Clarence Creek	28	53	1	3	1											
Eastview												1				
Embrun						4										
Osgood Sta.				1		1										
Rockland				1		3										
Russell						4		2								
Simcoe—																
Allandale														2		
Alliston				4	1	4		2						5		
Angus				2												
Barrie	59	58	28	94	5	22	6	7		3			22			
Beeton			1	3												
Belle Ewart																
Bond Head		1	1	2	1	1										
Bradford	4	8	3	4		1	1	3								
Churchill				2												
Coldwater				3	1	6		1			1			1		
Collingwood	1	9	5	17	4	29		6		9	1	5	60			
Cookstown				5	1	2								2		
Creemore		1	3	3		1		3								

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk										Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
		Animal	Negri Bodies		Animal Inoculations	Food Content		Preser-vatives	Bacteriological				Extraneous Matter	Number of Milk Samples	Chemical	Bacterial				
			+	-		Fats	Total Solids		+	-	Tuber-cle Bac	Plus Cells					Count			
+	-		+	-				+	-	+	-									
	3															9		1		
																3				
																12				

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tubercu- lous Sputa		Typhoid Bloods		Syphilis							
	Release		Diagnosis						Wassermann Reaction						Treponem Pallida	
	+	-	+	-	+	-	+	-	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	-	+	-	
Simcoe—Cont.																
Edgar.....				1				1								
Elmvale.....	2		2	5		9	1	3								
Everett.....						1										
Hillsdale.....								1								
Midland.....	1	3	10	9	5	20	1	1		14	2	4	41			
Orillia.....	73	157	84	231	3	15	6	24		6		2	16			
Penetanguishene			4	7	2	3		1		3		1	2			
Phelpston.....						1										
Port McNicoll.....		3	2	4												
Stayner.....		1		6	1	7		6					3			
Stroud.....	1	1	2	1		7		1								
Thornton.....				1			2									
Tioga.....																
Tottenham.....						1										
Victoria Harbor.	1	5	6	13	3	15							2			
Waubashene.....			1		1	2		2								
Stormont—																
Aultsville.....						4										
Cornwall.....			1	5	5	7		5		6		3	16			
Crysler.....						1		1		1			4			
Dickson's Land- ing.....								1								
Moose Creek.....					1	3										
Sudbury—																
Burwash.....				3		1				95	18	47	981			
Capreol.....			3	1		2				8	1	2	92			
Chapleau.....				2		1		3		6			14			
Coniston.....			1		1	1				1						
Copper Cliff.....			1	8	3	4	1	2		2	1	2	4			
Crean Hill.....								1								
Creighton Mine..	2	4	2	5	2	4		2		7		3	17			
Espanola.....		1	2	5		1		2		1			4			
Massey.....			2	6									2			
Sudbury.....	1	3	6	6	5	23	1	22		28	3	10	105			1
Turbine.....				2			3	3		2		3	9			
Webbwood.....	2	1	3	4		4				2	1	1	5			
Worthington.....								1								
Thunder Bay—																
Fort William.....				6									1			
Grant.....													1			
Jellicoe.....																
White River.....				1						1			2			
Timiskaming—																
Cobalt.....		1	5	9	2	8		3	1			3	27			
Cochrane.....			6	1	1	11	4	4	1	5	1	4	30			
Elk Lake.....																
Englehart.....				1	2	10		1		1	1	1	8	3		
Gowganda.....																
Haileybury.....	2	3	4	1	6	14	2	7				3	11			
Hanbury.....							1									
Iroquois Falls..						1	1	1		9	1	2	12			
Kapuskasing.....				1		3	1	1				1	1			

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk										Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
+	-	Animal	Negri Bodies		Animal Inoculations	Food Content		Preservatives	Bacteriological				Extraneous Matter	Number of Milk Samples	Chemical	Bacterial				
			+	-		Fats	Total Solids		+	-	Tubercle Bac	Plus Cells					Count			
																	2	2		
																	24	1		
																	10	11		
																	26	152		
	1																82	700		
																	15	40		
																		1		
	1																1	9		
																	1	26		
																	1	15		
																		3		
																	4	4		
																	1	2		
																		45		
																		5		
																		4		
																		49		
																		7		
																		1		
																		4		
	698														1	21		1271		
																11		121		
	1	1														4		31		
																17		22		
																111	2	141		
																		1		
																15	2	65		
																22	3	41		
																1		11		
	4															71	16	305		
																4		26		
	1																	24		
																		1		
																		1		
																		8		
																		1		
																1		1		
																		4		
																		77		
	1	2														16		82		
	6															7		1		
																1		1		
	5	2																35		
																5	1	6		
																10		78		
	13																	1		
																		1		
																9	2	38		
																4		13		

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con*[illegible]

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tubercu- lous Sputa		Typhoid Bloods		Syphilis							
	Release		Diagnosis						Colloidal Gold Reaction	Wassermann Reaction		Treponema Pallida				
	+	-	+	-	+	-	+	-		Very Stron- gly Positive	Strongly Positive	+	-	+	-	
Wellington—Con.																
Guelph.....	8	4		25	3	14	1	6			7		2	21		
Harriston.....		1		2		6								2		
Hillsburg.....			1	2		5										
Moorefield.....						3										
Morrison.....							1	3						1		
Mount Forest.....			2	4	3	12	1	2								
Palmerston.....				1	1	2		1								
Rockwood.....	2	4	1	1		1		1								
Wentworth—....																
Dundas.....	1	2		3	1	3					1		1	6		
Freelton.....					1	1										
Hamilton.....				1		2	6				51	4	14	197		
Lynden.....				3												
Sheffield.....						3										
Stoney Creek.....		1		2												
Vinemount.....																
Waterdown.....																
York—																
Agincourt.....				6	2	11		1						9		
Aurora.....	28	31	61	470	1	3										
Birch Cliff.....			1					1								
Coleman.....																
Downsview.....																
Fairbank.....	5	12		3	1	1										
Highland Creek.....																
Jackson's Point.....																
Keswick.....				2		1		2								
King.....		2		2		1										
Lambton Mills.....	2	1				2										
Locust Hill.....																
Long Branch.....	16	15	10	5		1										
Malvern.....																
Maple.....						1										
Markham.....		2		4		4		2			3		1	4		
Milliken.....						1										
Mimico.....	8	8	10	271	1	2		1			4			15		
Mimico Beach.....		5	2	14	3	1		6			3			6		
Mount Albert.....		3	3	7		2		6								
Mount Dennis.....	4	3	11	11	2	1	1	1						3		
Nashville.....								1								
Newmarket.....	3	2	5	7		2	1	1						5		
Newtonbrook.....						1										
New Toronto.....	14	20	9	22	1	3	1				30	7	12	94		
Queensville.....			3	3		1										
Richmond Hill.....	4	4	1	7	2	5	2	4			3	2	1	48		
Roches Point.....																
Scarboro'.....			1	2												
Schomberg.....	1	1			1											
Stouffville.....	1	2		3	1									5		
Sutton West.....			2	8	1	2		2								
Swansea.....		5	1	4												
Thistleton.....																
Thornhill.....				1		1					76	7	54	753		
Todmorden.....		5	1	2		1										
Toronto.....	276	386	130	354	9	88	5	24	103	679	110	501	4720			4
Unionville.....						2										

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con,*

Gonorrhea		Rabies Diagnosis				Milk							Waters				Total for Year	
		Animal	Negri Bodies		Animal Inoculations	Food Content		Preser- vatives	Bacteriological			Extraneous Matter	Number of Milk Samples	Chemical	Bacteria	Liquors for License Department		Miscellaneous Specimens
			+	-		Fats	Total Solids		+	-	Tuber- cle Bac								Plus Cells	Count
+	-																	
2	12	5dgs	2—	3+									1		34	11	23	182
...															1			11
...																		9
...																		3
...		3																5
...																		27
...																		5
...															1			11
1																		
...		1dog	1	—												21		40
...															22	40		338
...																		3
...																	1	4
...															2			5
...															1			1
...															2			2
...																		
...														3				36
...															7			598
...															1			3
...															1			1
...															1			1
...															1			2
...															1			1
...															1			5
...																		5
...																		5
...															4			9
...															3			3
...	2														20			69
...													1					1
...															3			3
...	2	5													12			39
...																		1
...	1																2	323
...																		40
...																		21
...	1														2	2		42
...																		1
...																		26
...																	1	2
...	5	9													3	1		230
...																		7
...	1	5												1	12			102
...															5			5
...															5			8
...																		3
...																		12
...	1														3			19
...																		10
...															2			2
...															2			894
...															3			12
105	353	5dgs	2+	3—										6	167	160	87	8272
...															2			4

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tubercu- lous Sputa		Typhoid Bloods		Syphilis							
	Release		Diagnosis						Colloidal Gold Reaction	Wassermann Reaction				Treponema Pallida		
	+	-	+	-	+	-	+	-		Very Strong- ly Positive	Strongly Positive	+	-	+	-	
York—Con.																
Weston.....	58	67	208	577	1	6	.....	3	.....	2	.....	.....	6	.....	.....	.....
West Toronto.....	35	54	5	7	.....	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Willowdale.....	4	3	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Woodbridge.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
York Mills.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals.....	1124	2068	1324	5603	342	1812	176	816	109	1659	245	958	1015	1	8	28

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—Con.

Gonorrhea		Rabies Diagnosis				Food Content		Preser- vatives		Milk					Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year	
+	-	Animal	Negri Bodies		Animal Inoculations	Fats	Total Solids	+	-	Bacteriological			Count	Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
			+	-						+	-	Tuber- cle Bac								Plus Cells
		2													2		29 1	15	19	995 111 9 2 7
															2		5			
275	836	17dg	7+	9-											131	42	2047	543	207	30520

YEARLY REPORT

Outfits, Vaccines and Treatments supplied by Laboratory at No. 5, Queen's Park,
during the year 1920.

Municipalities	Outfits sent out										Pasteur Preventive Treatment		
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid	Total	Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Cases	No. of Injections
Algoma—													
Bruce Mines											5		
Collin's Inlet					1	1	1	3		20			
Cutler				2	2			4					
Foleyet	30			12				42	90	60	50		
Hornepayne				61				61					
Marksville	1		1		1	1	1	5	10	10	5		
Richard's Landing										500			
Sault Ste. Marie	96		6	6	15	9	24	156	120	80	10		
Spragge	12		2			1	2	17			30		
Thessalon	6		6			1	2	15	25	50	10		
Brant—													
Brantford	214		72	55	45	24	5	415	220	1345	1220		
Burford				12				12	20				
Ohswegen	8	6			1	1		16		40			
Paris	15					2		17	50	240	120		
St. George	12			6	4			22					
Bruce—													
Allenford	2		3				5	10					
Chesley		1		14	12	6		33	50	20			
Elmwood	3				2	3		8		100	30		
Formosa				1	1			2					
Hepworth						4		4					
Kincardine				1				1					
Mildmay	3		6					9					
Paisley	3			18				21		25			
Port Elgin				12		3		15	40				
Ripley				12	2			14					
Tara				12	1			13	30	70	15		
Tiverton											45		
Walkerton	1	1	1					3					
Warton	10		6		2	6	2	26	20	40			
Carleton—													
Ashton					2			2					
Carp						4		4		30			
Manotick					4	4		8					
Metcalfe	6				4	1		11	10	10	10		
Ottawa	2351	54	104		11	11	36	2567	522	3525	3100		
Westboro										20	10		
Dufferin—													
Grand Valley					1			1	25	30			
Orangeville						2		2					
Shelburn					5			5					
Dundas—													
Aultsville				1				1					
Iroquois	3		6	3			1	13	40		5		
Morisburg	13	1	7	3	1	4	1	30	52	30	10		
Newington	4			7		1	2	14	100				
Durham—													
Bethany				13	1	1		15					
Bowmanville	109	13	85		66	11	6	290	40		160		
Enniskillen			4					4					
Garden Hill										30	25		
Millbrook	6		6	6	2	2	2	24		10			
Orono										25			
Port Hope				109	4	4		117		160	1254		

YEARLY REPORT

Outfits, Vaccines and Treatments supplied by Laboratory at No. 5, Queen's Park,
during the year 1920

Municipalities	Outfits sent out							Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur Preventive Treatment	
	Syphilis (Wasserman)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T. B.	Typhoid				Cases	No. of Injections
Elgin—												
Dutton.....								10				
Fingal.....								40				
St. Thomas.....								20	215	15		
Stratfordville.....	6						1	7	20	10		
Essex—												
Comber.....				1			8	9				
Essex.....	12		6				2	20				
Kingsville.....					5		3	9	25			
Leamington.....	7				12			19	30	30		
Ojibway.....				9				9				
Pelee Island.....								20				
Stoney Point.....								10	30	5		
Windsor.....	910		300			32	5	1535	555	100	245	
Frontenac—												
Kingston.....								321		315		
Portsmouth.....				3				3				
Verona.....										10		
Wolfe Island.....								10	30	10		
Glengarry—												
Alexandria.....									20	10		
Apple Hill.....				12				12				
Dalhousie Mills.....						1	2	12				
Dalkeith.....					1		1	2				
Lancaster.....					1			1				
Maxville.....	9		12	24	1		2	53	20	75		
Grenville—												
Merrickville.....							2	2	20	5		
Prescott.....	12							12	30	100		
Spencerville.....							1	1				
Grey—												
Chatsworth.....	6						1	7	10	10		
Clarksburg.....							1	1	25			
Dramore.....				1				1	10			
Durham.....				6			3	9	30	90		
Flesherton.....	12		6		4		1	23				
Hanover.....				4	1		7	12		10		
Heathcote.....							1	1				
Holstein.....	4				2		1	7				
Markdale.....									10	20	10	
Meaford.....				8	2			10	42			
Owen Sound.....	48		48	12	15		8	131	20	316	50	
Shallow Lake.....							1	1				
Haldimand—												
Caledonia.....					2			2	20			
Canfield.....							1	1				
Cayuga.....				6				6				
Dunnville.....	30		12	14	13	1	1	92	70	65		
Fisherville.....					1			1				
Hagersville.....							1	1				
Jarvis.....					6		4	2				
Haliburton—												
Haliburton.....	62		12		5		4	85	10	55		
Minden.....	12		12				1	25				
Halton—												
Acton.....					1			1				
Burlington.....	6			24			1	31				

YEARLY REPORT

Outfits, Vaccines and Treatments supplied by Laboratory at 5 Queen's Park, during the year 1901.

Municipalities	Outfits sent out							Doses of Typhoid paratyphoid Vaccin supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur Preventive Treatment		
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid				Total	Cases	No. Injections
Halton—Con.													
Georgetown.....	2		2	12			1	17		225	70		
Milton.....						3	1	4					
Norval.....				2				2					
Oakville.....	12		12	16				40	30	160	60		
Hastings—													
Bancroft.....										250	125		
Belleville.....	38	5		18	294	14		369	320	130	220		
Cannington.....									30	50			
Deseronto.....	4		4				1	9	45	25	5		
Eldorado.....								6					
Frankford.....				1	2			3	40				
Foxboro'.....					11			11					
Glenmiller.....				1				1					
Madoc.....						1		1					
Marmora.....			6	42	4			52					
Maynooth.....											35		
Roslin.....	6							6					
Springbrook.....					4			4					
Stirling.....					1			1		20			
Trenton.....				6	3	3		12	82	273	55		
Tweed.....				6				6	20				
Huron—													
Blythe.....						1		1					
Brussels.....				1				1					
Clinton.....									10				
Crediton.....										20	20		
Ethel.....					1			1			10		
Exeter.....			6		2			8					
Goderich.....	6		12		7	5	3	33			16		
Gorrie.....				1				1					
Seaforth.....					3			3	20				
Wroxeter.....						1		1					
Kenora—													
Keewatin.....	5		10				3	18		50			
Kenora.....										56			
Sioux Lookout.....										30			
Kent—													
Blenheim.....									40				
Chatham.....	72		48	126	6	18		270	110	210	110		
Dresden.....									50	150	210		
Merlin.....											60		
Ridgetown.....				15				15	20				
Tilbury.....				24				24					
Wallaceburg.....	6							6	10				
Wheatly.....					1			1					
Lambton—													
Camalachie.....					4			4		69			
Corruna.....				2				2					
Forest.....	6	6	6	4	8	4	2	36					
Petrolia.....									10				
Port Lambton.....	6							6					
Sarnia.....	180		24	8	16	14	8	250	50	45	265		
Thamesville.....	25		1		2	2	1	31		120	160		
Thedford.....					2	1	1	4	10				
Watford.....							1	1	10	10	20		

YEARLY REPORT

Outfits, Vaccines and Treatments supplied by Laboratory at No. 5 Queen's Park, during the year 1920

Municipalities	Outfits sent out							Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur Preventive Treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid				Cases	Injections
Lanark—												
Almonte.....					12	4		16			60	
Carleton Place.....	8		8	72	2	2		92	25		30	
Dalhousie Lake.....				2				211				
Lanark.....									20			
Pakenham.....	12					4		16	10			
Perth.....					1			1				
Smith's Falls.....					12			12	90			
Leeds—												
Brockville.....	24				10	9		43	100	105	265	
Gananoque.....	12		6		1	1	1	21			60	
Lyn.....	1	1	1		1	1	1	6		40		
Mallorytown.....					8			8				
Westport.....	6				6			12				
Lennox and												
Addington—												
Napanee.....					1			1		60		
Newburg.....									10			
Odessa.....								40	25	5		
Tamworth.....					12			12	20			
Lincoln—												
Beamsville.....	12		12					24	60	55	20	
Grimsby.....	18		3		6			27	130	40		
Jordan.....						2		2				
Jordan Sta.....				6				6	300			
Niagara-on-the-												
Lake.....					2	2		4	20	20	10	
Port Dalhousie.....				1				1				
St. Catharines.....	336			5	51	44	9	445	430	698	300	
St. Davids.....									85		140	
Smithville.....							2	2	20	50	10	
Manitoulin—												
Little Current.....			6	12		1			45			
Middlesex—												
Ailsa Craig.....				6		1			7			
London.....	1310		200			400	100	2010	206	516	540	
Melbourne.....									10			
Parkhill.....											25	
Muskoka and												
Parry Sound.....										60		
Bala.....												
Bent River.....				2				2				
Bracebridge.....	10		6		7	10	2	35				
Burk's Falls.....				18		18	4	40	136	58	15	
Byng Inlet.....			6					6		159		
Callander.....				1			5	6	40			
Dunchurch.....				1				1				
Gravenhurst.....	300		36		5		1	342	10			
Huntsville.....	4				3	2		9	30	20		
Kearney.....				6				6				
McKellar.....	6					1	1	8				
Pakesley.....	16			16		1	2	35				
Parry Sound.....	52		12	6		4	2	76	10	14	135	
Powassan.....					4	1	10	15				
Rosseau.....				3				3		20	10	
South River.....										60		

YEARLY REPORT

Outfits, Vaccines and Treatments supplied by Laboratory at No. 5, Queen's Park, during the year 1920.

Municipalities	Outfits sent out							Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur Preventive Treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid	Total			Cases	No. Injections
Sprucedale.....						1		1		20		
Sundridge.....			6		2	2	3	13	95	48		
Trout Creek.....	4		6		2		1	13		10		
Vankoughnet.....									10	10	5	
Nipissing—												
Cachle Bay.....									200			
Nickteton.....	6							6				
Norrb Bay.....	86		25	6	36		4	157	225	570		
Sturgeon Falls ..	24			13				37			15	
Norolk—												
Delhi.....	14		7	32	3	1	5	62				
Port Dover.....					1	1		2		20		
Port Rowan.....	12			1		2		15	110	312	90	
Simcoe.....	6			16				22	95	60	80	
Wrsingham.....										42	10	
Nothumberland												
Brighton.....	12		16			2	2	32		140	45	
Campbellford.....	12			3	2	2	2	21	68	135	55	
Castleton.....				12				12				
Cobourg.....	12		6		22	10	7	57		110		
Colborne.....	6		6					12				
Cold Springs.....					5	1		6	125			
Grafton.....					3			3				
Roseneath.....					3			3				
Warkworth.....					2	2	2	6	40	150	10	
Ontario—												
Beaverton.....				12				12				
Cannington.....				6				6	40			
Goodwood.....	2		4		4	2		12				
Oshawa.....	172		210	95	846	39	10	1372	297	120	240	
Pickering.....										10		
Port Perry.....				6	1	1	1	9				
Sunderland.....					1			1	30	105	15	
Uxbridge.....	22		6	6	1	4	3	42	80		15	
Whitby.....				24	5	2		31				
Oxford—												
Burgessville.....				2				2				
Drumbo.....						1	1	2	40	60		
Ingersoll.....												
Mount Elgin.....						1		1				
Norwich.....	6				2	1		9		100		
Otterville.....	1			24		2		27	30	20	20	
Tillsonburg.....	12				2	7	1	22		89		
Woodstock.....	30			12	8	6	2	58	30			
Peel—												
Alton.....	2				3			5			5	
Bolton.....	10		4	15	7	2		38			50	
Brampton.....				2				3				
Burnhamthorpe.....						1		1				
Caledon.....				6				6				
Clarkson.....						1		1		20		
Cooksville.....				2				2				
Inglewood.....										20		
Palgrave.....					5			5			50	
Perth—												
Listowel.....	6				17	6	3	32	50			

YEARLY REPORT

Outfits, Vaccines and Treatments supplied by Laboratory at No. 5, Queen's Park, during the year 1920.

Municipalities	Outfits sent out							Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur Preventive Treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid				Cases	No. Injections
Mitchell	16		12		9	1	1	39	20	20	30	
St. Mary's									30	30		
Stratford				10		10		20		70	240	
Peterboro—												
Baillieborough				4	6			10	20			
Havelock				14				14				
Lakefield							2	2				
Peterboro	224	12	42	24	32	20	5	359	110	1105	280	2 42
South Monaghan									20			
Prescott—												
Alfred									20			
Fournier			6					6	6	100		
Hawkesbury	30	6	12		2	2	4	56			60	
Vankleek Hill	2				1	1		4				
Prince Edward—												
Ameliasburg					4			4			15	
Bloomfield			4					4		30	25	
Consecon					2			2				
Hillier					2			2				
Pictou	4	1	4	15	3	3	1	31	10	10	5	
Wellington					2	1	1	4			10	
Rainy River—					10			10			40	
Emo											25	
Rainy River									150			
Renfrew—												
Arnprior						1		1				
Beachburg	4		6		1	2	1	14	10	10		
Calabogie			3	6	1			10		40	10	
Cobden					21	2	3	26	10	156	20	
Eganville					12	1		13		278	60	
Forrester's Falls					3			3				
Pembroke	33			84	1			118	20	70	100	
Renfrew									84	264	30	
Westmeath	6			1		1		8		107		
Russell—												
Bourget					2	4		6	134	508	240	
Clarence Creek					12			12				
Embrun						1		1				
Rockland				20				20		45	5	
Russell									50	40	50	
Simcoe—												
Allandale	25							25				
Alliston	2				1	1	1	5		20		
Barrie	84		48	36	55	9	8	240	110	40	50	
Beeton					4			4				
Bondhead					1	6		7				
Bradford	6				7			13		10		
Coldwater	1		1		1	1	1	5			30	
Collingwood	128		24	12	16	3	2	185	45			
Cookstown	6				2	1		9				
Creemore					1	1		1				
Elmvale					1	1	1	3				
Everett											25	
Midland	54		60	18	17	17	6	172	10	150		
Orillia	34		12	126	88	4	3	267	30			
Penetanguishene	6				3	1		10	20			

YEARLY REPORT

Outfits, Vaccines and Treatments supplied by Laboratory at No. 5, Queen's Park, during the year 1920

Municipalities	Outfits sent out							Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur Preventive Treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid	Total			Cases	No. of Injections
Port McNicoll.....						1		1				
Stayner.....	6		4		1		2	13	40	70	105	
Stroud.....						2		2		20		
Tottenham.....						1		1				
Victoria Harbor.....					6		2	8				
Waubaushehe.....					1		1	2				
Stormont—												
Cornwall.....	49				5	15	5	74			10	
Crysler.....	5					1		6				
Finch.....	2		2		6	5	5	20	30	10	5	
Mille Roches.....						1		1				
Moose Creek.....						1		1				
Sudbury—												
Burwash.....	1300			16				1316				
Capreol.....	7	1	1	36	4	2	1	52	20	40	10	
Chapleau.....	18			4		1		23	150			
Coniston.....						1		1				
Copper Cliff.....				120				120				
Creighton Mines.....	32				2	2	2	38			20	
Espanola.....	12			28	4		1	45		10		
Massey.....				1	7	1	1	10		50		
Sudbury.....	154		6	102	8	14	3	287	170	140	10	
Turbine.....	24			4			4	32				
Webbwood.....	10				2	1		13			40	
Worthington.....				18				18				
Thunder Bay—												
Fort William.....									350	984	375	
Grant.....	12							12				
Port Arthur.....					6			6				
Timiskaming—												
Charlton.....									100			
Cobalt.....	36			62	11	2		111	50	210	60	
Cochrane.....	48			6		9	30	93	50	50	200	
Elk Lake.....									10		15	
Englehart.....	50				4			54				
Gowganda.....									60	60		
Haileybury.....	24		6	24	1	3	1	59				
Hearst.....	6				1	2	1	10				
Iroquois Falls.....	36			8		6		50		40		
Kapuskasing.....				18				18				
Kirkland Lake.....											10	
Larder Lake.....				3				3	750			
Matheson.....				8				8				
New Liskeard.....	12		10			1	4	27	60	204	40	
Schumacher.....	6				1			7				
Smooth Rock Falls.....	12			8	2	1		21	215	156	50	
South Porcupine.....	18				2	1		21				
Timmins.....	52	13	21	12	3	9	12	122	244	289	30	
Twin Falls.....				6					60			
Victoria—												
Bobcaygeon.....			10			2		12	20		15	
Coboconk.....	6				1	1		8			10	
Fenelon Falls.....				1				1		40		
Kirkfield.....					2			2				
Lindsay.....					5	10	4	19				
Little Britain.....									90	10		
Omamee.....	12				24			36		65		
Woodville.....				3	4	4	4	15	90			

YEARLY REPORT

Outfits, Vaccines and Treatments supplied by Laboratory at No. 5, Queen's Park, during the year 1920.

Municipalities	Outfits sent out							Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur Preventive Treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid				Cases	No. of Injections
Waterloo—												
Ayr	6		6		12	3		27	10	35	25	
Baden					2			2				
Elmira						1		1				
Galt	110		8	12	32	8		170	20	10		
Hespeler	20			10	9	7		46	10			
Kitchener	72		32	1	25	24		154	30	480	235	
New Dundee	4			4	1			9		135		
New Hamburg	6					2		8	10			
Preston	6			7		2		15			55	
Waterloo	10		6		56			72		243	75	
Welland—												
Chippawa				12	2	2	2	18			10	
Niagara Falls	157		62	42	11	7	3	282	70		160	
Port Colborne	12		6	48	9	1	1	77	40	30		
Port Robinson			2					2				
Ridgeway	42	12	24	18	8	3	2	109	20	80	45	
Thorold	22							22	10		15	
Welland	144	26	30	30	11	13	7	261	140		280	
Wellington—												
Alma						1		1				
Arthur	1			4				5			10	
Drayton	6				2	1	1	10	50		45	
Erin					2			2				
Fergus	14	1	2	4				21			15	
Glen Allan					9			9				
Guelph	36		20	24	14	6	1	101	30	780	2	42
Harriston	3				5	1		9				
Mount Forest			6			2	2	10				
Palmerston											10	
Rockwood									30			
Wentworth—												
Dundas	6				3	3		12		20		
Hamilton	348		12	14				374	520	3430	1860	
Stoney Creek				3	4			7				
York—												
Agincourt	6			10	4	3		23	62			
Aurora				10	41			51	39	39		
Fairbank						1		1				
Highland Creek				1				1				
Lambton Mills					1	1		2				
Langstaff	12							12				
Locust Hill				1				1				
Long Branch											55	2
Markham	14		14	6	2	1	1	38				
Mimico	3		3		40	1		47	220	148		
Mount Albert											15	
Mount Dennis					2			2	100			
Newmarket	10					2	1	13		84		
New Toronto					3			3				
Pefferlaw				1				1				
Queensville					2	1		3				
Richmond Hill	74		42	24	12	3	8	163		30	80	
Schomberg					2	1		3				
Stouffville	12				4			16				
Sutton					3		1	4		96		
Thornhill	135							135				

YEARLY REPORT

Outfits, Vaccines and Treatments supplied by Laboratory at No. 5, Queen's Park, during the year 1920.

Municipalities	Outfits sent out							Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur Preventive Treatment		
	Syphilis (Wassermann)	Syphilis (Treponema Palida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid				Total	Cases	No. of Injections
Todmorden.....	6							6					
Toronto.....	5380	7	554	79	1611	55	16	7702	2065	8464	380	2	42
Unionville.....				6				6			23		
Weston.....				12	36	4	1	53	20	475	5		
Woodbridge.....					4			4		20	5		
Militia Orders—													
Halifax.....									120				
Ottawa.....									920				
Totals.....	16,295	167	2,569	2,476	4,184	1,543	502	27,736	14,845	33,775	16,810	6	616

Grand Total—93,298.

REPORT OF THE BRANCH LABORATORY OF THE BOARD AT KINGSTON

The Chairman and Members of the Provincial Board of Health:

Gentlemen:

I have the honour to submit the report of the work done in the Branch Laboratory of the Provincial Board of Health during the year 1920.

During this year 7162 specimens were examined as per appended table:

Diphtheria:—

Swabs for Release from Quarantine.....		1,379
Positive.....	426	
Negative.....	953	
Swabs for Diagnosis.....		1,993
Positive.....	445	
Negative.....	1,548	
Sputums for Tubercle Bacilli.....		1,016
Positive.....	136	
Negative.....	480	
Bloods for Typhoid Reaction.....		396
Positive.....	82	
Negative.....	314	
Syphilis—Wassermann Reaction.....		1,456
Positive.....	206	
Negative.....	1,250	
Gonorrhea.....		174
Positive.....	46	
Negative.....	128	
Milk Tubercle Bac.....		4
Negative.....	4	
Water for Bacteriological Analyses.....		452
Miscellaneous Samples.....		292
Total.....		7,162

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis							
	Release		Diagnosis						Wassermann Reaction				Treponema Pallida			
	+	-	+	-	+	-	+	-	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	-	+	-	
Algoma—																
Richard's Ldg.							1									
Bruce—																
Paisley							6	12								
Carleton—																
Manotick			1	8	1	2										
Metcalfe			1	4												
Ottawa										14	9	8	85			
Richmond							1									
Dundas—																
Brinston							1									
Chesterville							1	1	1					2		
Iroquois		4	1	1	2	3	1	2						6		
Morewood																
Morewood																
Morrisburg									1							
Winchester							5		4					5		
Frontenac—																
Battersea																
Collin's Bay							1									
Harrowsmith							1									
Kingston	372	758	292	917	57	601	15	138		100	24	7	1025			
Portsmouth							6									
Sarbot Lake	1		2	6					2							
Snow Rd.							1									
Sydenham			2	2	1	4			1							
Sunbury	1	2		2		1										
Verona		1	1	3	1	2	1	6						2		
Wolfe Island		11	2	19		2		3								
Glengarry—																
Dalkeith					1											
Lancaster			1													
Maxville							1		1							
Williamstown				2	2	4										
Grenville—																
Algonquin																
Cardinal		1	1	2	1	8		4						3		
Jasper				3		2										
Kemptville	3		1	1					2					5		
Merrickville					2	3		2								
North Augusta				1												
Prescott		1	1	1	1		7	6		1				1		
Spencerville							2									
Hastings—																
Bancroft					3	5										
Belleville	27	77	57	409	12	50	7	18		8	1			26		
Deseronto																
Foxboro'		3	3	9		2										
Frankford		3	1													
Maymoth		3	3	9		2										
Roslin			3	4		4		1								
Stirling				1												
Trenton					2	1										
Tweed						8		4								

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REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis							
	Release		Diagnosis						Wassermann Reaction						Treponema Pallida	
	+	-	+	-	+	-	+	-	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	-	+	-	
Kent—																
Tilbury.....																
Wallaceburg.....																
Lambton—																
Sarnia.....							1									
Lanark—																
Almonte.....		3	10	8	1											
Carleton Place.....			4	5	2	3	16	6		4				3		
Lanark.....					1	2										
McDonald's Cnr.....				4	1	2		2								
Perth.....		1	1	1		5		1						1		
Smith's Falls.....				1	10	19	2	13		1				4		
Leeds—																
Athens.....			1			1										
Brockville.....	7	13	8	16	2	9	2	12		6				22		
Delta.....				1										1		
Elgin.....				1					1							
Gananoque.....		1		5	3	6	6	5		1	2			8		
Lansdowne.....		1	2	14	1	5		2								
Lyn.....			1			1										
Mallorytown.....								1					1			
Newboro.....	5	22	9	8				3								
Seeley's Bay.....	2		2	8		1										
Westport.....			2	1		1		3								
Lennox and																
Addington—																
Adolphustown.....		14	2	4			1	1								
Bath.....			1	5				1								
Colebrook.....				1			1									
Denbigh.....						4										
Enterprise.....		1	1													
Flinton.....		4		4		2		1								
Napanee.....	5	7	8	14	3	12		9						1		
Newburgh.....		1	3	3				2								
Odessa.....						1										
Tamworth.....			3	4		3		1								
Yarker.....				1		1		2								
Muskoka—																
Bracebridge.....						1		1								
Northumberland																
Campbellford.....	2	8	2	1						1				3		
Cobourg.....		6	2	9		1				2	1			6		
Colborne.....		1	1		1	2	1									
Roseneath.....				1												
Warkworth.....																
Parry Sound—																
Parry Sound.....					1	1										
Peterboro'—																
Peterboro'.....					1			1								
Prescott—																
Fournier.....		1		2		6	3	1						2		
Prince Edward—																
Picton.....				5		2	2	2								

ONTARIO AT KINGSTON, FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

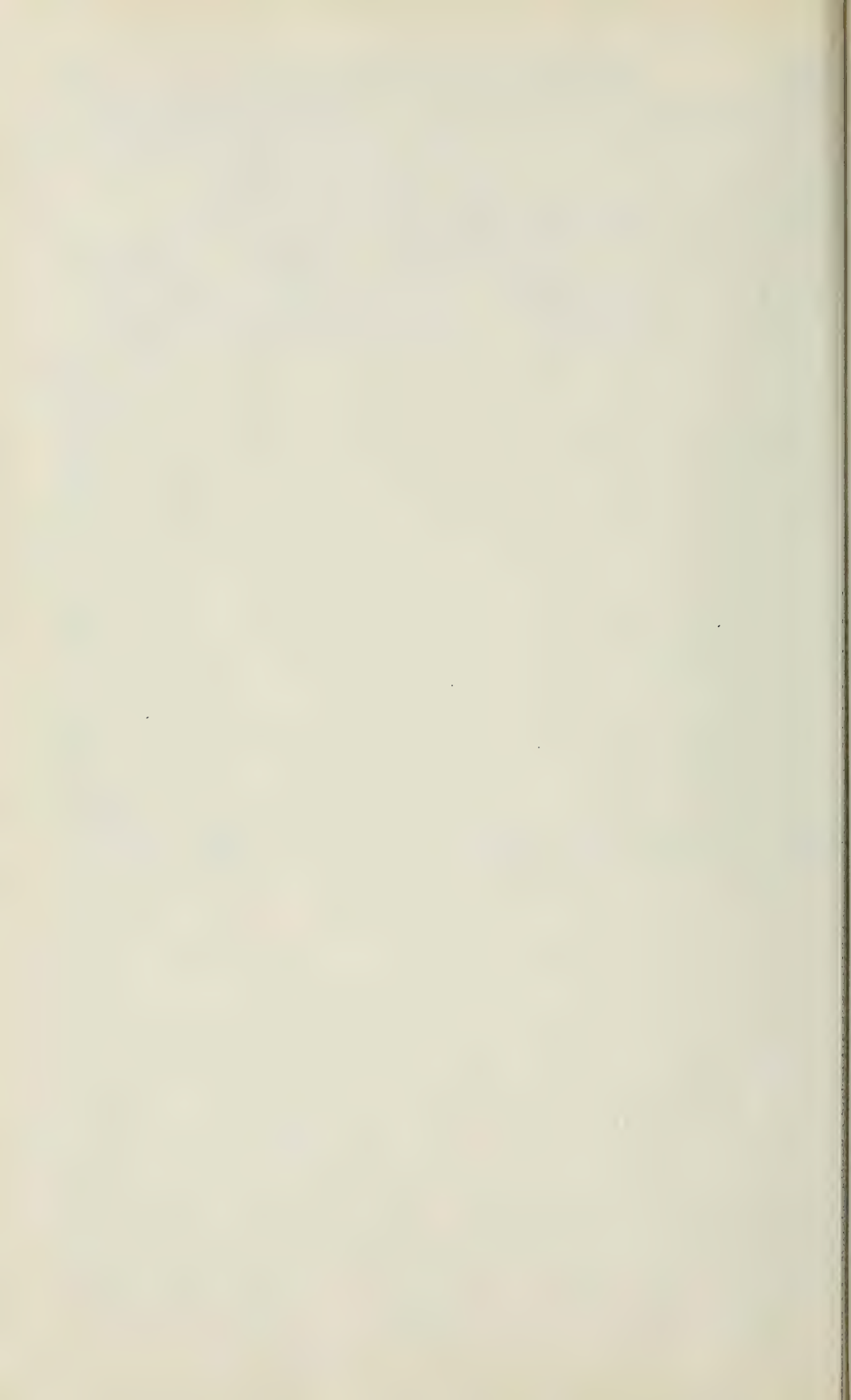
Gonorrhea	Rabies Diagnosis				Milk										Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year		
	Animal	Negri Bodies		Animal Inoculations	Food Content		Preserv-atives	Bacteriological				Count	Extraneous Matter	Number of Milk Samples	Chemical	Bacterial					
		+	-		Fats	Total Solids		+	-	Tuber- cle Bac										Plus Cells	
										+	-									+	-
+	-	+	-																		
1																	1				
1																	1				
																	1				
2	5															4	22				
																	54				
																	3				
																	9				
																	11				
1														17		3	71				
																	5				
														3			102				
2														5			4				
																	2				
2	1													4		1	45				
																	25				
																	2				
																	2				
																	47				
																	13				
1														2			10				
																	22				
																	7				
																	2				
																	2				
																	4				
																	2				
																	11				
1															24		84				
															2		11				
																	1				
																	11				
																	4				
																	2				
																	19				
2																	30				
														3			11				
														2		3	1				
																	3				
														3			2				
																	3				
1																	17				
1	1																13				
														2			13				

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis						
	Release		Diagnosis						Wassermann Reaction				Treponema Pallida		
	+	-	+	-	+	-	+	-	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	-	+	-
Pictou—Con.															
Rednersville.....							1								
Renfrew—															
Annprior.....			1	1	1	2									
Calabogie.....								2							
Cobden.....			2	2		1									
Killaloe.....						3									
Pembroke.....					9	14	2	1						2	
Petawawa.....															
Renfrew.....	1	3	2	3	3	13	2	6						7	
Westmeath.....				1		1		2							
Simcoe—															
Barrie.....								5							
Stormont—															
Chesterville.....						1		1							
Cornwall.....		2	2	7	5	11	1	4		2				5	
Dickinson's Ldg.						1		1							
Finch.....			2	5	2	5	3	9		6	1			8	
Moose Creek.....															
Newington.....				3	1	1		3							
Timiskaming—															
Cochrane.....						3								1	
Victoria—															
Lindsay.....						2	1		4	1		17			
Welland—															
Ridgeway.....														1	
Wellington—															
Guelph.....						5		1		1					
Grand Total	426	953	445	1548	136	880	82	314		151	39	16	1250		

ONTARIO AT KINGSTON, FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk										Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
+	-	Animal	Negri Bodies		Animal Inoculations	Food Content		Preserv-atives	Bacteriological				Count	Extraneous Matter	Number of Milk Samples	Chemical	Bacterial																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
			+	-		Fats	Total Solids		+	-	Tuber- cle Bac	+									-	Plus Cells	+	-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		



REPORT OF THE BRANCH LABORATORY OF THE BOARD OF LONDON (INSTITUTE OF HEALTH)

The number of examinations made by the Branch Laboratory of the Provincial Board of Health at London (Institute of Public Health) in 1920 were as per table:

Diphtheria:		
Swabs for Release.....		1138
Positive.....	300	
Negative.....	838	
Swabs for Diagnosis.....		2019
Positive.....	318	
Negative.....	1701	
Sputum for Tubercle Bacilli.....		1015
Positive.....	182	
Negative.....	833	
Blood for Typhoid Reaction.....		297
Positive.....	90	
Negative.....	207	
Colloidal Reaction.....		207
Syphilis—Wassermann Reaction.....		3044
Very strongly Positive.....	683	
Strongly Positive.....	129	
Positive.....	62	
Negative.....	2170	
Gonorrhea.....		382
Positive.....	87	
Negative.....	295	
Rabies Diagnosis.....		1
Food Contents.....		473
Milk for Examination:—		
Count.....		579
Water for Bacteriological Examination.....		736
Chemical.....	242	
Bacterial.....	494	
Liquors for Examination.....		9
Miscellaneous Specimens.....		784
Total.....		10,684

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis						
	Release		Diagnosis						Wassermann Reaction				Treponem Pallida		
	+	-	+	-	+	-	+	-	Colloidal Gold React'	Very Strongly Positive	Strongly Positive	+	-	+	-
Algoma—															
Turbine.....										3	1	1	3		
Brant—															
Brantford.....					1	2				4			11		
Paris.....				3	1	2		2							
Bruce—															
Kincardine.....				2	1	2					1				
Lucknow.....					1	1									
Mildmay.....						2		1							
Walkerton.....						6				3		1	5		
Carleton—															
Ottawa.....									8	9	4		34		
Durham—															
Millbrook.....						2				1	1		1		
Elgin—															
Aylmer.....						2				4	1		6		
Dutton.....				3		5									
Pt. Bruce.....															
Pt. Stanley.....					2										
Springfield.....						2								1	
Shedden.....	5	19	6	6	1	3								1	
St. Thomas.....				1		1				14	4		42		
Wallacetown.....						1		1							
West Lorne.....				1		1	1								
Essex—															
Comber.....						5	3								
Kingsville.....	4	3	7	8		2	1	4							
Leamington.....						2		1							
Stoney Point.....				3											
Tilbury.....						1						1	1		
Walkerville.....						3				8				14	
Windsor.....						2				36	11	5	100		
Grey—															
Dromore.....											1				
Elmwood.....						2									
Hanover.....															
Haldimand—															
Dunnville.....		5	7	5		6	2	7							
Huron—															
Bayfield.....															
Blyth.....						1		1							
Clinton.....				1				1							
Crediton.....				3			2								
Dashwood.....															
Exeter.....				4	2		1		1						
Goderich.....	1	3	2	5		2		5					1		
Hensall.....		2	3	6		6									
Seaforth.....				1	3	3		2		1					
Wingham.....					1	5									
Zurich.....				1		5	2	3							
Kent—															
Blenheim.....					2	18	2	7		1	2			5	
Chatham.....		1	5	9	8	35	4	13	2	12	1	4	54		
Dresden.....		1	2	5		3		4						1	
Duart.....		1	1	1		3									
Highgate.....						1									
Merlin.....				3	2	3				2				8	

ONTARIO AT LONDON FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea	Rabies Diagnosis				Milk										Wat rs		Liquors for License Department	Miscellaneous Specimen	Total for Year		
	Animal	Negri Bodies		Animal Inoculations	Food Content		Preserv-atives	Bacteriological				Extraneous Matter	Number of Milk Samples	Chemical	Bacterial						
		+	-		Fats	Total Solids		+	-	Tubercle Bac.						Pus Cells				Count	
										+	-					+					-
+																					
																	8				
1	1															2	22				
	1															1	10				
																	6				
1	3																2				
1													16	11			34				
																	16				
																	55				
	1															15	21				
													14	16		1	44				
																1	9				
													2	2			4				
																	2				
																	3				
																	41				
																1	63				
													10	10		1	23				
													2	2		1	8				
																	8				
													6	6			41				
																1	4				
1	1																3				
																	5				
																	25				
																2	156				
																	1				
																	2				
																	1				
																1	33				
1	1															1	1				
																	4				
																1	3				
													8	8		4	25				
																1	1				
	5												3	3		3	22				
						20						20	4	4			67				
																	17				
													3	3		2	18				
1	2															1	10				
	1																12				
													1	1		1	40				
4	14												4	200		7	377				
													1	1		1	21				
3	3																12				
																	1				
1													16	16		1	52				
													1	1			2				

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tubercu- lous Sputa		Typhoid Bloods		Syphilis							
	Release		Diagnosis						Wassermann Reaction				Treponema Pallida			
	+	—	+	—	+	—	+	—	Colloidal Gold React'	Very Strong- ly Positive	Strongly Positive	+	—	+	—	
Kent—Continued																
Paincourt																
Ridgetown	2			1	3	6		4							2	
Thamesville		12	2	14	1	6	1	1					1		5	
Wallaceburg	1	2	2	3		5				14			1		33	
Wheatley			1	2	1	1	2	3		1					2	
Lambton—																
Alvinston		1		1												
Arkona				1						1						
Brigden					1											
Camlachie	1	19	10	14		1	2	4								
Courtright																
Florence						1										
Forest	2	6	2	13	3	9		1	1	3					3	
Inwood				3												
Oil Springs				1		1										
Petrolia	1	3	2	6	2	4		3							1	
Pt. Lambton							1	1								
Sarnia	11	15	11	27	5	29	2	10		26	2	1		65		
Theford							1									
Watford	1	2		1	2	1	3									
Wyoming				1		5	2									
Lincoln—																
St. Catharines			1							2					8	
Middlesex—																
Adelaide															2	
Belmont	2	3	1	2		2										
Byron		1	4	92	19	65				9	2	4		37		
Denfield																
Dorchester		2	1	9	2	8		3						4		
Glencoe				1			1							1		
Granton				3	1	2		2								
Harrietsville																
Hyde Park						2				1				2		
Kirkton		2	3	5	1	4	2							4		
Komoka					6											
Lambeth				1												
Lobo				2												
London	260	658	205	1162	76	367	31	57	97	322	72	27	1184			
Lucan		1	2			1		3								
Melburne						1	1	5								
Mt. Brydges	1	35	13	159												
Newbury				1		2		1								
Parkhill						4	1	2								
Strathroy				1	2	7		2								
Thorndale			1		3	2	3	3						1		
Wardsville											1			2		
Nipissing—																
Burwash														1		
North Bay										3				12		
Norfolk—																
Delhi		1		2												
Simcoe										2				1		
Northumberland																
Campbellford																
Ontario—																
Whitby						1		2	17	7	1	1	57			

ONTARIO AT LONDON FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

[illegible]

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis						
	Release		Diagnosis						Colloidal Gold Reaction	Wassermann Reaction		Treponema Pallida			
	+	-	+	-	+	-	+	-		+	-	+	-		
Oxford—															
Beachville														1	
Brownsville						5								1	
Burgessville							1								
Drumbo															
Ingersoll		3	1	16	9	27	6	10	2	6	2			15	
Innerkip		2	1	3											
Lakeside						9								1	
Plattsville				1											
Tavistock				1		2			2						
Thamesford			1	4	2				2					1	
Tillsonburg						1								4	
Woodstock		8	3	30	2	19	1	1		26	5	2	24		
Perth—															
Listowel	3	4	1	4	1	13	5	4						3	
Mitchell	1	5	2	6		1		2		5				4	
St. Mary's			1	5		9	1	7		2					
Sebringville	3	7	1	7		1		1							
Stratford		6	2	11	3	29		7	2	24	2	3	47		
Peterboro—															
Peterboro	1	2	1		1	1	3	4							
Rainy River—															
Emo														1	
Renfrew—															
Pembroke														2	
Sudbury—															
Foleyet										1				4	
Timiskaming—															
Smooth Rock Falls														2	
Waterloo—															
Galt							1	6	2					9	
Kitchener			2	11	9	23			2	37	7	4	175		
New Dundee														1	
Preston															
Wellesley					3	10									
Welland—															
Welland										2				5	
Wellington—															
Guelph						2		3	74	83	7	5	1149		
Harriston		3	1	9		1									
Moorefield															
Mt. Forest										1					
Wentworth—															
Dundas														1	
Hamilton											1			2	
Sheffield						1									
York—															
Markham										1				2	
Toronto										2		1		1	
Grand Total	300	838	318	1701	182	833	90	207	207	683	129	62	2170		

ONTARIO AT LONDON FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

[illegible]

DIVISION OF LABORATORIES

FORT WILLIAM, Nov. 1, 1920

Sir.--I have the honour to submit the report of the work done in the local laboratory of the Prov. Board of Health for the year ending Oct. 31st, 1920. In this year, which was the opening year here, 2,275 specimens were examined as per appended table, and in addition the venereal diagnosis and treatment of the inmates of the Fort William Industrial farm were all done by this laboratory. Please allow me to make the following comments:

Positive Sputa

I have had the privilege of visiting some of these cases, probably 25% and I know that a fair proportion were early cases some of which required a positive sputum report before the diagnosis was made.

Widals

I visited 90% of these cases and performed the wet method of agglutination, in preference to the dry method, so that I was able to make a definite report giving results in various known dilutions of the sera tested; of those who had been inoculated with typhoid vaccine previously, I always made two examinations a week apart, so that I was able to determine whether or not the titre increased and thus make a diagnosis; in these cases the dry method would have been valueless.

Wassermans

You will see that out of a total of 636 sera examined 156 or about 25% were positive, the great majority of the latter being very strongly positive. I think I saw over 50% of these cases myself and the results correspond well with the history and clinical manifestations in 98% of cases; a good many are for purposes of diagnosis; last month alone, out of 30 positives no less than 21 were for diagnosis as reported to Dr. R. R. McClenahan. These Wassermans are all performed according to the method recommended by the Medical Research (now council) of the United Kingdom and our results are from a method as nearly standard as possible up to date.

Water Analysis

This work is now coming in at a fair rate as Dr. G. L. Sparks is getting after the various Municipalities, emphasizing the importance of this phase of the health problem and its vital relation to the community.

Miscellaneous Specimens

Under this head I have included the extra work I do for the local physicians, which includes urinalysis, blood counts, gastric analysis, pathological sections, lumbar punctures, blood transfusion tests and so on. I have been charging only a small fee for these and in cases where the patient cannot pay, the work is done free including the visit. I made this arrangement with the Medical Society when coming here last fall, according to permission given by you while I was in Toronto during the summer. All other work has been done free of charge according to the ruling of the Prov. Board of Health.

Industrial Farm

During the year I have examined 165 inmates all told, finding 21 of these suffering from Syphilis for which in practically every case little or no treatment had been given; and 3 cases of G. C. I, and my assistant, Mr. W. J. Thompson, made 39 visits to the farm during the year, and gave during the year no less than 90 treatments of diarsenol intravenously and mercury intramuscularly, preparing the solutions at this laboratory just before going out, so that the solutions were still warm for administering and so far I am glad to report, there have been no reactions either with diarsenol or Mr. Lancaster's preparation of Phenarsenamine; and the patients have benefited greatly and all cases in the infective stage were rendered non-infective. I tried to give 7 treatments to every man unless his sentence expired beforehand, in which case he was allowed to go unless he was in an infective condition.

Conclusion

I think the establishment of this laboratory has or is being justified; I have spent all of my time at the above work, and have not been away from these two cities a day since coming here a year ago last October 1. I think that the closer a laboratory is to the spot the better it is for the community and for several reasons; in the first place it gives the director a good opportunity to see the clinical aspect and therefore he is more particular about his work and also takes more interest in the same and develops more care and confidence; secondly, the physician must be constantly reminded of the weakness of a laboratory report so that he does not rest content with a negative or positive report as the case may be and personal contact with the physician and the man at the head of the laboratory is necessary to achieve this purpose.

Quarterly Report

I am also enclosing this for the last quarter of the year, viz., that ending October 31st, 1920. Trusting these will meet with your approval, I am,

Faithfully yours,

N. O. THOMAS.

*Dr. J. W. S. McCullough, D.P.H., Chief Officer of Health,
Parliament Buildings, Toronto, Ont.*

Laboratories, Fort William, Nov. 1, 1920.

Summary Work Done Ending October 31st., 1920

Diphtheria:		
Swabs for release from quarantine.....		39
Positive.....	16	
Negative.....	23	
Swabs for diagnosis.....		227
Positive.....	28	
Negative.....	199	
Sputa for Tubercle Bacilli.....		302
Positive.....	52	
Negative.....	250	
Blood for Typhoid Reaction.....		32
Positive.....	13	
Negative.....	19	
Syphilis-Wasserman Reaction.....		636
Positive.....	156	
Negative.....	480	
Treponema Pallida.....		8
Positive.....	2	
Negative.....	6	
Gonorrhea.....		175
Positive.....	67	
Negative.....	108	
Water for analysis.....		106
Miscellaneous samples.....		536
Milk for analysis.....		214
Total.....		2275

Certified correct,

N. O. THOMAS,

Director of Laboratory.

STATEMENT OF BIOLOGICAL PRODUCTS
Distributed Free of Charge by the Provincial Board of Health, Ontario
 November 1st, 1919 to October 31st, 1920

Month	Smallpox Vaccine points	Diphtheria antitoxin units	Diphtheria antitoxin syringes	Toxin antitoxin vials	Schick test ouffts	A. M. serum ouffts	Intra-spinal ouffts	Tetanus Antitoxin units	Tetanus Antitoxin syringes	Tetanus Oufits	Pasteur tr. (Rabies)	Typhoid vaccine cc.	Pertussis Vaccine			Silver Nitrate sol.
													B	10cc.	25cc.	
November.....	250,300	42,413,000	1,750	.....	4	160	29	451,500	36	1	.....	755	119	71	28	364
December.....	126,685	39,940,000	2,303	.....	.....	17	7	34,500	11	.....	.....	455	230	57	39	337
January.....	75,145	52,132,000	3,116	.....	.....	70	34	512,000	84	2	.....	528	119	120	106	339
February.....	31,115	29,773,000	964	.....	.....	56	15	57,000	.....	.....	.....	815	40	131	36	246
March.....	13,350	35,364,000	2,479	.....	6	109	18	346,500	10	.....	.....	1,847	79	52	27	178
April.....	9,240	24,375,000	1,462	.....	.....	117	6	238,500	24	.....	1	227	5	118	91	174
May.....	14,090	24,172,000	1,720	.....	.....	76	9	168,000	5	.....	1	623	4	134	46	319
June.....	11,805	24,346,000	1,462	3	78	24	.....	450,000	4	2	2	1,014	10	107	46	83
July.....	6,315	8,824,000	515	.....	24	39	3	352,000	19	.....	.....	1,236	52	161	44	314
August.....	9,020	22,258,000	1,479	.....	.....	119	12	298,500	28	.....	1	1,045	62	59	51	296
September.....	10,800	28,134,000	1,738	.....	.....	127	14	738,000	99	3	.....	783	16	217	19	451
October.....	17,060	32,888,000	1,269	10	107	46	15	388,000	15	.....	.....	2,043	.....	143	28	117
	574,925	364,619,000	20,257	13	219	960	172	4,094,500	335	8	5	11,371	736	1,370	561	3,218

CASES AND DEATHS FROM COMMUNICABLE DISEASES
Reported Weekly by Local Boards of Health for the Year 1920

Month	Smallpox		Scarlet Fever		Diphtheria		Measles		Whooping Cough		Typhoid		Tuberculosis		Infantile Paralysis		Cerebro-spinal Meningitis		Syphilis	Gonorrhea	Chancreoid	Influenza and Pneumonia		Deaths	Acute Primary Pneumonia
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Cases	Cases	Cases	Cases	Deaths	Deaths
January.....	1188	6	642	21	636	70	1296	16	162	19	42	12	145	135	2		8	7	112	94	3	69	24	297	
February.....	883	9	646	24	551	84	1623	36	168	23	42	16	201	183	2	1	13	10	72	84	2	20158	1345	970	
March.....	446	7	560	29	451	56	1256	23	136	31	27	7	213	173			1	1	64	77	2	3853	734	602	
April.....	305	4	487	12	418	58	1618	27	135	17	33	14	223	193			7	5	93	137	7	177	143	302	
May.....	290		383	10	378	46	2264	45	99	12	41	12	237	127	1	1	8	7	81	107	3	61	53	293	
June.....	349		371	12	432	45	3613	22	151	15	31	12	220	184	2	1	9	9	167	183	4	49	39	260	
July.....	142		169	4	302	46	1419	15	106	5	35	8	161	82	2		3	3	131	135		9	9	116	
August.....	171		173	4	273	36	626	10	178	21	67	10	192	129	5	1	6	6	208	217	9	7	7	96	
September.....	93	1	188	3	434	51	142	5	177	15	75	11	180	113	7	2	5	4	157	213	8	6	6	46	
October.....	310	1	387	3	711	45	290	3	218	22	148	34	152	130	3	1	6	4	205	383	19	13	8	142	
November.....	437		413	11	666	43	303	1	177	14	113	21	145	99	6	4	4	4	219	259	16	37	31	116	
December.....	555	5	1107	17	778	74	913	7	335	16	59	25	181	114	7	3	7	7	229	269	9	45	12	242	
	5169	33	5130	150	5940	654	15423	210	2042	210	713	182	2259	1622	37	14	77	67	1740	2158	82	24284	2411	3482	

*Only about 85% of deaths are reported by Local Boards of Health.

Report of the Provincial Sanitary Engineer

F. A. DALLYN, C.E. Toronto

To the Chairman and Members of the Provincial Board of Health, Ontario.

Gentlemen,—I have the honour to submit the following report upon the work of your Sanitary Engineering Division for the year 1919. The following applications were received and approved:—

Waterworks extensions.....	97	certificates.....	\$3,519,019.59
New supplies and equipment.....	7	“.....	800,769.00
Water purification (new).....	9	“.....	693,171.00
Sewer extension.....	140	“.....	2,446,847.06
New sewer systems.....	7	“.....	317,966.60
Sewage disposal.....	2	“.....	81,886.25
<hr/>			
Re Sewage.....	149		\$2,846,699.91
Re Water.....	113		5,012,959.59
<hr/>			
			\$7,859,659.50

The total estimated cost of the work undertaken shows a further increase over last year, and represents the organized municipal effort to meet the unemployment situation by public works. The continuing high cost of materials of construction and for labour itself is putting a very heavy burden upon property owners in the local improvement rates, which in turn affects rentals, and new housing enterprises. The cost of local improvements are almost double the cost previous to the war in many municipalities. Despite this increased cost the number of municipalities undertaking new systems continues to increase, an evidence of the tendency of small urban centres towards improvement and extension of the amenities of life. The small sub-urban centre, with excellent transportation facilities, is at last realizing its share of the industrial expansions.

Table No. 1.—Typhoid Fever Death Rate Per 100,000 of Population
(Years 1910-1920)

Class Municipality	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910
Cities of Ontario.....	5.5	4.3	9.6	7.5	12.1	9.43	12.4	17.3	27.7	35.8	51.5
Towns.....	25.0	19.5	17.2	31.4	52.2	38.0	47.4	46.0	47.0	62.3	56.4
Counties.....	6.2	4.5	5.0	6.5	8.1	9.4	10.0	13.3	10.9	16.1	22.0
Province of Ontario.....	7.0	5.2	7.52	8.4	12.5	10.7	13.5	16.7	18.7	25.3	31.5
Registration Area.....		9.2	12.4	13.4	13.3	12.4	15.4	17.9	16.5	21.0	23.5
United States.....											
Quebec Province.....			17	29.5	24.2	21.4	19.9	19.0	24.3	34.0	27.0

The fact that the employment situation, whilst easier in larger centres is accompanied by an expensive procession of new hands all requiring lost time for instruction makes employers turn more than ever to smaller centres where housing accommodation can be had, and where the temptation for well paid laborers to shift about is not present to the same extent.

Table No. 2.—Typhoid Fever Death Rate 100,000 Population
Cities (Years 1910-1920)

	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910
Belleville.....	26	0	0	26	81	63	17	18	37	19	50
Brantford.....	6	0	14	10	24	11	24	17	77	72	24
Chatham.....	19	26	183	21	46	8	16	58	44	30	39
Ft. William.....	5	5	0	0	9	22	21	30	33	35	83
Galt.....	0	0	0	0	25	0	17	27	19	31	42
Guelph.....	0	6	6	6	0	12	12	6	6	13	27
Hamilton.....	9	2	5	4	4	6	7	14	8	24	15
Kingston.....	7	8	22	9	5	28	43	25	32	26	78
Kitchener.....	0	5	10	5	0	5	11	6	19	7	43
London.....	3	2	2	5	2	0	9	3	10	17	4
Niagara Falls.....	20	0	8	8	27	9	34	85	44	90	60
Ottawa.....	9	6	6	5	18	24	17	19	108	101	28
Peterborough.....	0	5	8	0	14	14	25	10	10	17	29
Port Arthur.....	26	0	0	20	21	5	50	146	163	121	178
St. Catharines.....	0	5	10	6	22	0	6	27	22	71	24
St. Thomas.....	0	12	35	31	29	29	0	50	19	19	20
Sarnia.....	21	8	41	62	60	34	26	45	139	148	101
Sault Ste. Marie.....	14	5	26	46	31	24	84	127	85	280	154
Stratford.....	0	0	0	0	12	17	6	6	20	13	34
Toronto.....	2	2	3	4	7	2	9	13	14	24	46
Welland.....	21	20	68	172	83	14	82	128	39	58	85
Windsor.....	8	20	18	38	29	35	27	10	38	34	49
Woodstock.....	0	20	10	10	28	10	0	10	30	42	21

In order to attract skilled labour the necessities of pure water and sewage accommodation was never more apparent than today. The improvement of the small town, the development of parks and community centres, the extension of waterworks and sewerage, the building of houses with modern conveniences are today of the greatest importance if the national character is to be maintained against the insidious influences which follow the absorption of foreign immigration and the expansion of industry.

The surveys with respect to the use of public utilities by the older premises in small towns has progressed during the year most satisfactorily.

Table No. 3.—Typhoid Fever Death Rate Per 100,000 Population
Towns (Years 1910-1920)

	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910
Barrie.....	29	15	0	29	0	28	0	15	46	15	91
Brockville.....	22	11	10	10	0	162	72	10	64	42	11
Cobalt.....	0	0	0	17	60	56	62	19	64	63	349
Collingwood.....	0	15	0	46	0	31	30	106	14	41	79
Cornwall	144	0	14	123	69	77	30	15	62	48	64
Ingersoll.....	19	0	39	0	0	38	39	0	21	21	0
Kenora.....	0	0	51	15	0	19	19	57	38	20	95
Lindsay.....	27	40	27	0	0	0	41	41	41	27	65
Midland.....	0	0	0	0	0	0	80	16	62	23	0
North Bay.....	28	22	12	23	10	40	29	23	38	89	113
Orillia.....	0	12	11	53	13	13	15	46	52	70	52
Oshawa.....	8	0	10	0	24	0	12	25	54	32	96
Owen Sound.....	0	8	8	17	50	0	16	24	8	16	16
Parry Sound.....	0	20	17	0	425	107	121	188	127	165	82
Pembroke.....	26	65	24	0	55	39	54	89	56	130	127
Renfrew.....	0	17	15	54	23	48	0	0	50	55	54
Smith's Falls.....	14	0	0	31	25	16	15	0	45	16	50
*Sudbury.....	114	114	130	118	125	62	240	380	320	530	390
Trenton.....	0	0	25	38	20	20	0	0	27	27	24
Walkerville.....	13	16	17	0	0	0	0	25	56	30	0

*Important Hospital Centres.

It is proposed to continue the work during the year 1921 as soon as the university session is over, and the samples, etc., collected can be shipped without danger of freezing.

The situation of the urban centres of the province with respect to protection of the water supply was briefly outlined in last year's report. The statistics of the incidence of typhoid fever (Tables Nos. 1, 2 and 3) continue to show that the transference of the disease by municipal water systems has become a minor factor. It must be borne in mind, however, that reduction of deaths from this cause is largely the result of the general control and reduction in the number of infected persons, and situations where potent danger is evident do not get infected as often as before. In some municipalities the water supply continues to be of unsatisfactory quality, and unless municipal councils are pressed by the local boards and the citizens generally, no funds will be spent upon the needed improvements. Citizens seldom realize that municipal councils find their justification for expenditure of public money *in expressed public sentiment*. Since the members naturally seek re-election it follows that the expressed wish of the electors must have great weight.

F. A. DALLYN.

CERTIFICATES ISSUED RE WATER MAINS, PURIFICATION, ETC., FOR THE
YEAR 1920

Municipality	No. of Certificates	Extensions	Purification	New
Alexandria.....	1	\$1,400 00		
Bridgeburg.....	1	15,000 00		
Brampton.....	2		\$47,000 00	
Brantford.....	1	186,331 44		
Brockville.....	1	14,033 52		
Courtwright.....	1			\$16,719 00
Elmira.....	2		5,200 00	
Fort Francis.....	1	1,459 52		
Georgetown.....	1			
Gravenhurst.....	1	6,452 60		
Hamilton.....	8	256,329 95		
Hanover.....	1	66,612 00		
Hawkesbury.....	1	31,221 41		
Jordan.....	1			
	(Dom. Canrs. Filter)			
Kenora.....	1	18,000 00		
Kincardine.....	1	13,000 00		
Kingston.....	1	7,067 00		
Kitchener.....	3	49,314 80		
Lindsay.....	1	15,922 59		
Listowel.....	1	4,807 90		
London.....	1	85,000 00		
Napanee.....	1			85,000 00
New Liskeard.....	1	6,602 00		
Newmarket.....	1			20,000 00
New Toronto.....	1	88,830 00		
Oshawa.....	5	332,406 00		
Pembroke.....	2	34,024 00		
Peterborough.....	3	9,099 36	350,000 00	
Pictou.....	3	6,137 00		
Port Dalhousie.....	1			117,600 00
Preston.....	2	7,157 13		
Rainy River.....	1	9,000 00		
Renfrew.....	1	3,042 00		
Richmond Hill.....	1			95,000 00
St. Catharines.....	1	11,312 46		
St. Mary's.....	1	6,000 00		
St. Thomas.....	2		290,971 00	
Sandwich.....	7	32,129 47		
Sandwich East.....	6	81,237 79		
Sarnia.....	5	111,000 00		
Scarborough Twp.....	1			210,000 00
Stamford Twp.....	1	90,000 00		
Stratford.....	2	6,786 08		
Sudbury.....	2	32,085 47		
Toronto.....	2	279,528 94		
Trenton.....	1			256,450 00
Waterloo.....	1	46,296 31		
Watford.....	1	63,360 00		
Welland.....	1	5,850 10		
Whitby.....	1	1,498 00		
Windsor.....	1	200,000 00		
York Twp.....	21	1,283,684 75		
	112	\$3,519,019 59	\$693,171 00	\$800,769 00

Summary

Extensions.....	\$3 519,019 59
Purification.....	693,171 00
New.....	800,769 00
	<u>\$5,012,959 59</u>

CERTIFICATES ISSUED RE SEWER EXTENSIONS, DISPOSAL WORKS AND NEW SEWERS IN 1920

Municipality	No. of Certificates	Extensions	Disposal	New
Amherstburg	3	\$50,606 56		
Anderdon Twp.	1			\$18,947 00
Belleville	4	84,976 65		
Brantford	3	16,041 00		
Brockville	1	69,128 00		
Burlington	1	13,155 00		
Campbellford	1	4,609 14		
Chatham	2	3,190 40		
Cornwall	2	1,369 00		
Eastview	1	29,506 78		
Elmira	1			26,334 60
Ford City	2	580,88 47		
Fort Frances	1	786 48		
Fort William	2	8,771 68		
Goderich	2	3,125 00		
Grimsby	1		Disposal	
Guelph	2		81,886 25	
Hamilton	9	160,218 88		
Hawkesbury	1	33,475 04		
Kingston	5	26,566 20		
Lindsay	6	30,764 70		
London	6	23,829 03		
Midland	2	13,859 10		
Newmarket	1			50,000 00
New Toronto	1	10,830 00		
Niagara Falls	4	257,720 28		
North Bay	2	16,829 00		
Orillia	1	2,553 73		
Oshawa	2	46,090 00		
Ottawa	18	123,197 09		
Penetang	4	6,759 63		
Perth	3	2,012 44		
Peterborough	2	1,068 45	Disposal	
Port Dalhousie	1			49,000 00
Port Dover	1			32,000 00
Preston	1	5,108 60		
St. Catharines	4	10,675 02		
Sandwich	8	23,834 13		
Sandwich East	2	475,447 24		
Sarnia	6	28,105 95		
Sault Ste. Marie	1	2,804 90		
Smith's Falls	2	7,413 00		
Stamford Twp.	1	1,500 00		
Sturgeon Falls	2			116,800 00
Sudbury	2	31,608 09		
Thorold	1	2,340 00		
Toronto	7	411,087 99		
Walkerville	3	95,282 48		
Welland	2	6,924 50		
Whitby	1	1,784 95		
Windsor	8	198,802 48		
Woodstock	1	45,000 00		
York Township	2			24,885 00
	151	\$2,446,847 06	\$81,886 25	\$317,966 60

Summary

Extensions	\$2,446,847 06
Disposal Works	81,886 25
New	317,966 60
	\$2,846,699 91

Effect of Periods of Non-Aeration on the Activated Sludge Process of Sewage Purification

G. A. H. Burn, B.A.Sc.

Assistant Engineer, Sanitary Engineering Division

One of the most frequently voiced objections against the adoption of the activated sludge process of sewage purification by urban municipalities, is the alleged high cost of operation. This cost is mainly made up with power charges for operating compressors, the process being one which requires from .6 to 1.5 cubic feet of free air per gallon of sewage treated.

Urban municipalities throughout the Province using Hydro power pay for the highest peak load extending over a period of twenty minutes on any day of the month. Obviously the ideal condition for the municipality is to either resell or utilize power so as to maintain an average load which will, as closely as possible, approximate the peak. This is rarely the case in the smaller municipalities on account of the fact that the load carried may be roughly divided into three classes, viz.: industrial, lighting and domestic. An adverse combination of any two or all three will result in a high peak. As a rule the average load is considerably less than the peak.

R.B.H. 9

TABLE NO. 1.

DAILY NON-AERATION NECESSARY TO AVOID UNCONTROLLABLE MONTHLY
PEAK—MARCH, 1920

Day of Month	30 H.P. Unit		60 H.P. Unit	
	Required Hours of Non-aeration A.M. P.M.		Required Hours of Non-aeration A.M. P.M.	
1	Nil	Nil	Nil	Nil
2	"	"	"	"
3	0.67	"	1.17	0.75
4	Nil	"	Nil	0.67
5	"	"	"	0.33
6	"	"	"	Nil
7	"	"	"	"
8	0.50	"	1.00	"
9	Nil	"	1.83	"
10	"	"	1.00	"
11	0.50	0.25	0.83	1.42
12	Nil	Nil	Nil	Nil
13	"	"	"	"
14	"	"	"	"
15	"	0.67	"	1.17
16	"	2.00	0.83	2.83
17	1.17	1.67	1.83	2.33
18	Nil	1.33	Nil	2.67
19	"	0.33	1.33	0.33
20	"	Nil	Nil	Nil
21	"	"	"	"
22	"	"	"	0.50
23	"	"	"	Nil
24	1.67	"	2.33	Nil
25	0.50	"	1.83	0.50
26	0.33	"	0.83	Nil
27	Nil	"	1.25	"
28	"	"	Nil	"
29	1.00	1.83	2.50	3.33
30	2.00	Nil	2.50	Nil
31	2.00	0.83	3.33	2.83
Total.....	19.25 hours		44.58 hours	

An analysis of the daily power charts of a typical small municipality (Brampton) for the months of the year 1920 in which the maximum and minimum peakloads occurred, was made to determine the number of hours it would be necessary to pull units utilizing 30 and 60 h.p. respectively, in order to avoid creating a further peak. This analysis showed that for two months, in which the peak was at the maximum and minimum registered for the year, the maximum duration of continuous stoppage required to keep off the peak, appears to have been 2.00 and 3.83 hours respectively.

TABLE NO. 2.

DAILY NON-AERATION NECESSARY TO AVOID UNCONTROLLABLE MONTHLY
PEAK—NOVEMBER, 1920

Day of Month	30 H.P. Unit		60 H.P. Unit	
	Required Hours of Non-Aeration		Required Hours of Non-Aeration	
	A.M.	P.M.	A.M.	P.M.
1	0.33	1.00	0.67	1.83
2	0.50	0.67	1.17	1.00
3	Nil	1.17	Nil	1.17
4	"	"	"	Nil
5	"	"	"	"
6	0.33	"	0.41	"
7	Nil	"	Nil	"
8	"	0.67	"	0.67
9	0.83	1.17	1.33	2.00
10	Nil	0.67	Nil	1.00
11	"	0.67	"	1.00
12	"	Nil	"	1.00
13	"	"	"	Nil
14	"	"	"	"
15	"	0.33	"	0.67
16	"	0.83	"	2.17
17	"	Nil	"	0.33
18	"	"	"	Nil
19	"	"	"	1.00
20	"	"	"	Nil
21	"	"	"	"
22	"	"	0.33	"
23	"	0.33	Nil	1.33
24	"	0.50	"	1.50
25	"	0.83	"	2.00
26	"	1.00	"	1.58
27	"	Nil	"	Nil
28	"	"	"	"
29	"	0.33	0.67	1.17
30	"	1.00	Nil	1.17
Total.....	13.16 hours		27.17 hours	

The effect of these stoppages does not represent any serious interruption to the sewage purification process (see experiments page 128), therefore the operating problem is to keep off the peak load. This would be a simple matter if the peak were reached at the same hour during the month. Such, however, is not the case. The accompanying table No. 3, giving the day of the month and the hour at which the peak occurred for the year 1920 for Brampton, illustrates the extreme irregularity of the peak. It would be impossible then to arbitrarily set certain non-aeration periods unless that period covered the whole time during which the peak was likely to occur. A stoppage period of this length would be unwise, particularly as it would take place when the strongest sewage was passing through the plant and, therefore, at a time when the greatest possible aeration is needed.

TABLE NO. 3.

HYDRO POWER PEAK LOADS FOR THE TOWN OF BRAMPTON DURING 1920

Day of Month	Time	Peak load H.P.
Jan. 7	5.20 P.M.	860
Feb. 4	9.20 A.M.	781
Mar. 17	3.20 P.M.	760
Apr. 27	11.25 A.M.	898
May 13	3.22 P.M.	809
June 11	11.30 A.M.	898
July 10	10.35 A.M.	840
Aug. 25	10.58 A.M.	919
Sept. 29	8.15 A.M.	919
Oct. 26	4.45 P.M.	965
Nov. 26	5.08 P.M.	970
Dec. 1	4.38 P.M.	905

The most satisfactory arrangement appears to be the installation of an automatic control device, which could cut off the current to the motor operating the compressor when the load approached the peak, and which could complete the circuit again as soon as the load dropped sufficiently.

TABLE NO. 4.

 HOUR AND PERIOD OF NON-AERATION REQUIRED TO AVOID THE PEAK LOAD
 IN THE TOWN OF BRAMPTON, 1920 FOR MAXIMUM MONTHLY PEAK LOAD

Date March	30 H.P.		60 H.P.	
	A.M.	P.M.	A.M.	P.M.
1	.....	.....	.....	.....
2	.....	.....	.....	.....
3	8.40- 9.20	.....	8.20- 9.30	4.15- 5.00
4	.....	.....	.....	4.20- 5.00
5	.....	.....	.....	3.00- 3.20
6	.....	.....	.....	.....
7	.....	.....	.....	.....
8	11.00-11.30 )	..... )	9.50-10.20))
	)	)	11.00-11.30))
9	.....	.....	9.10-11.00	.....
10	.....	.....	10.40-11.40	.....
11	10.20-10.50)	3.10- 3.25)	10.10-11.00)	3.10- 3.25)
	)	)	)	4.20- 5.30)
12	.....	.....	.....	.....
13	.....	.....	.....	.....
14	.....	.....	.....	.....
15	.....	4.20- 5.00	.....	3.50- 5.00
16	.....	3.00- 5.00	10.30-11.20	2.40- 5.30
17	10.20-10.40)	2.40- 4.20)	10.20-10.40)	2.10- 4.30)
	11.05-11.55 )	)	11.05-11.55))
	)	)	8.10- 8.50))
18	.....	2.40- 4.20	.....	2.00- 4.40
19	.....	4.00- 4.20	10.00-11.20	4.00- 4.20
20	.....	.....	.....	.....
21	.....	.....	.....	.....
22	.....	.....	.....	4.40- 5.10
23	.....	.....	.....	.....
24	10.00-11.40 )	..... )	8.30- 9.00))
	)	)	10.00-11.50))
25	11.00-11.30	.....	9.40-11.30	4.00- 4.30
26	11.40-12.00	.....	10.10-12.00	.....
27	.....	.....	.....	.....
28	.....	.....	.....	.....
29	10.00-11.00	3.40-4.50	9.00-11.30	1.00- 4.50
30	9.00-11.00	.....	9.00-11.20	.....
31	8.30- 9.40)	3.40- 4.30)	8.30-11.50)	2.20- 5.00)
	11.00-11.50))))

20 Stoppages

32 Stoppages

Maximum monthly peak load refers to the month of the year which shows the greatest peak load.

TABLE NO. 5.

HOUR AND PERIOD OF NON-AERATION REQUIRED TO AVOID THE PEAK LOAD
 IN THE TOWN OF BRAMPTON, 1920 FOR MINIMUM MONTHLY PEAK LOAD

Date Nov. 1	30 H.P.		60 H.P.	
	A.M.	P.M.	A.M.	P.M.
1	9.40-10.00)	4.00- 5.00)	8.00- 8.20)	3.10- 5.00)
	)	)	9.40-10.00))
2	8.30- 9.00)	4.40- 5.00)	8.30- 9.20)	4.50-5.50)
	)	5.30- 5.50)	11.20-11.40))
3	.....	3.20- 4.30	.....	3.20- 4.30
4	.....	.....	.....	.....
5	.....	.....	.....	.....
6	8.20- 8.40	.....	8.15- 8.40	.....
7	.....	.....	.....	.....
8	.....	5.20- 6.00	.....	5.20- 6.00
9	8.30- 9.00)	4.20- 5.30)	8.30- 9.00)	4.00- 6.00)
	9.40-10.00 )	)	9.30-10.20))
10	.....	5.00- 5.40	.....	5.00- 6.00
11	)	4.40- 5.00 )	)	4.40- 5.40)
	)	5.20- 5.40)))
12	)	)	5.30- 5.50)	2.50- 3.10)
	)	)	)	4.40- 5.00)
13	.....	.....	.....	.....
14	.....	.....	.....	.....
15	.....	3.00- 3.20	.....	3.00- 3.40
16	)	3.50- 4.40 )	)	3.30- 5.00)
	)	)	)	5.20- 6.00)
17	.....	.....	.....	5.20- 5.40
18	.....	.....	.....	.....
19	.....	.....	.....	5.10- 6.10
20	.....	.....	.....	.....
21	.....	.....	.....	.....
22	.....	.....	9.40-10.00	.....
23	)	5.20- 5.40 )	)	3.40- 4.20)
	)	)	)	5.20- 6.00)
24	.....	4.30- 5.00	.....	4.20- 5.50
25	)	4.30- 5.00 )	)	3.50- 5.50)
	)	5.20- 5.40)))
26	.....	4.40- 5.40	.....	4.15- 5.50
27	.....	.....	.....	.....
28	.....	.....	.....	.....
29	)	5.00- 5.20	10.20-11.00)	4.30- 4.50)
	)	)	)	5.00- 5.50)
30	.....	4.10- 4.50 )	.....	4.00- 4.50)
	)	5.10- 5.30 )	)	5.10- 5.30)

24 Stoppages

33 Stoppages

Minimum monthly peak load refers to the month of the year which shows the lowest peak
 load

Generally speaking, the efficient operation of the activated sludge process depends entirely upon the continuity of aeration and the introduction of stoppage periods does undoubtedly cause some loss in efficiency. To determine just how great this effect would be, a series of experiments were carried out with the assistance of other members of the staff of the Experimental Station, Clifford Street, using the experimental activated sludge plant. This plant is of the continuous flow type, the raw sewage being pumped from one of the city's interceptor sewers. During the tests the flow was maintained as nearly constant as possible. The period of storage is approximately four hours in the aeration tank and twenty minutes in the settling chamber.

Three day tests from 9.30 a.m. to 4.30 p.m. were run with non-aeration periods of two, three and four hours. The results of these tests indicated that the operation of the plant did not return to normal at 4.30 p.m., so it was decided to carry the test over the 24 hour cycle with a four hour period of non-aeration. The four-hour stoppage was chosen as it represented the worst permissible condition, in that it would be inadvisable to allow a period of non-aeration greater than the storage period of the tank. On April 11th, 12th and 13th a 48-hour run was completed.

The tests involved both a chemical and a bacteriological analysis of the effluent and the raw sewage. Samples for bacteriological examination were taken at 15 minute intervals on the effluent, and hourly on the raw. 18-20°C and 37°C plates on plain agar with incubation periods of 48 and 24 hours respectively were made, and a test of *B. Coli* using safranin lactose broth was run on each sample. Samples for chemical analysis were taken half hourly on the effluent, while composite samples of the raw sewage, extending over six hours were analyzed. The chemical analysis involved the determination of the free and alb. ammonia, nitrites, nitrates, oxygen consumed, dissolved oxygen and temperature of each sample. The results obtained from all tests have been averaged for each hour, and an attempt made to illustrate graphically on the accompanying sheets, the variations that may be expected under the different periods of non-aeration under which tests were run.

GRAPHS—PLATE I CHEMICAL ANALYSES

REPORT ON THE EFFECT OF PERIODS OF NON- AERATION ACTIVATED SLUDGE PROCESS

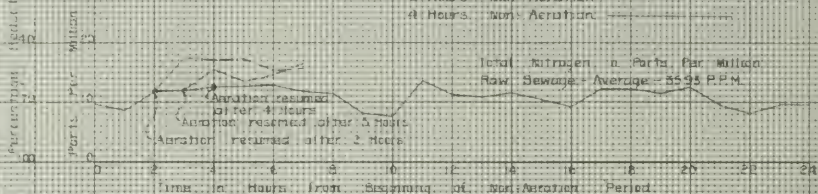
EXPERIMENTAL STATION

CLIFFORD STREET

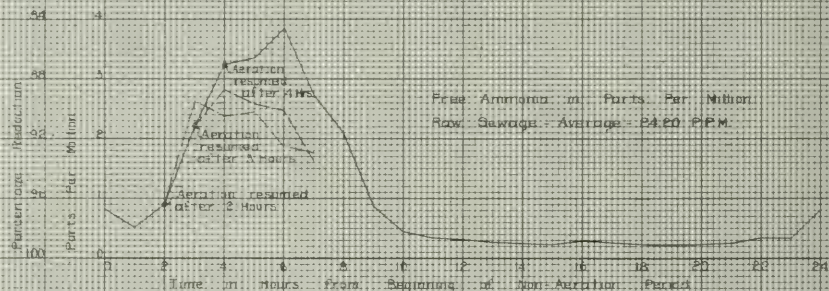
Legend

- 2 Hours Non-Aeration
- 3 Hours Non-Aeration
- 4 Hours Non-Aeration

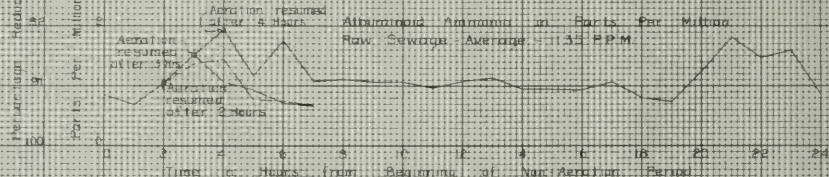
Total Nitrogen in Parts Per Million
Raw Sewage - Average = 55.95 PPM



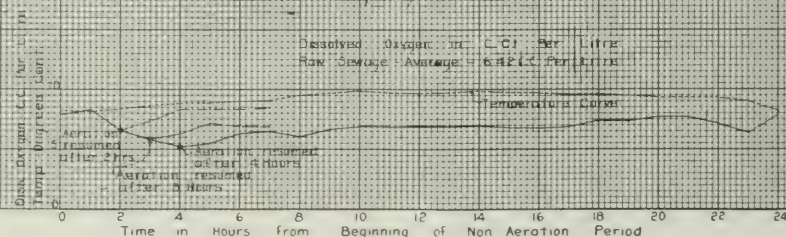
Free Ammonia in Parts Per Million
Raw Sewage - Average = 24.20 PPM



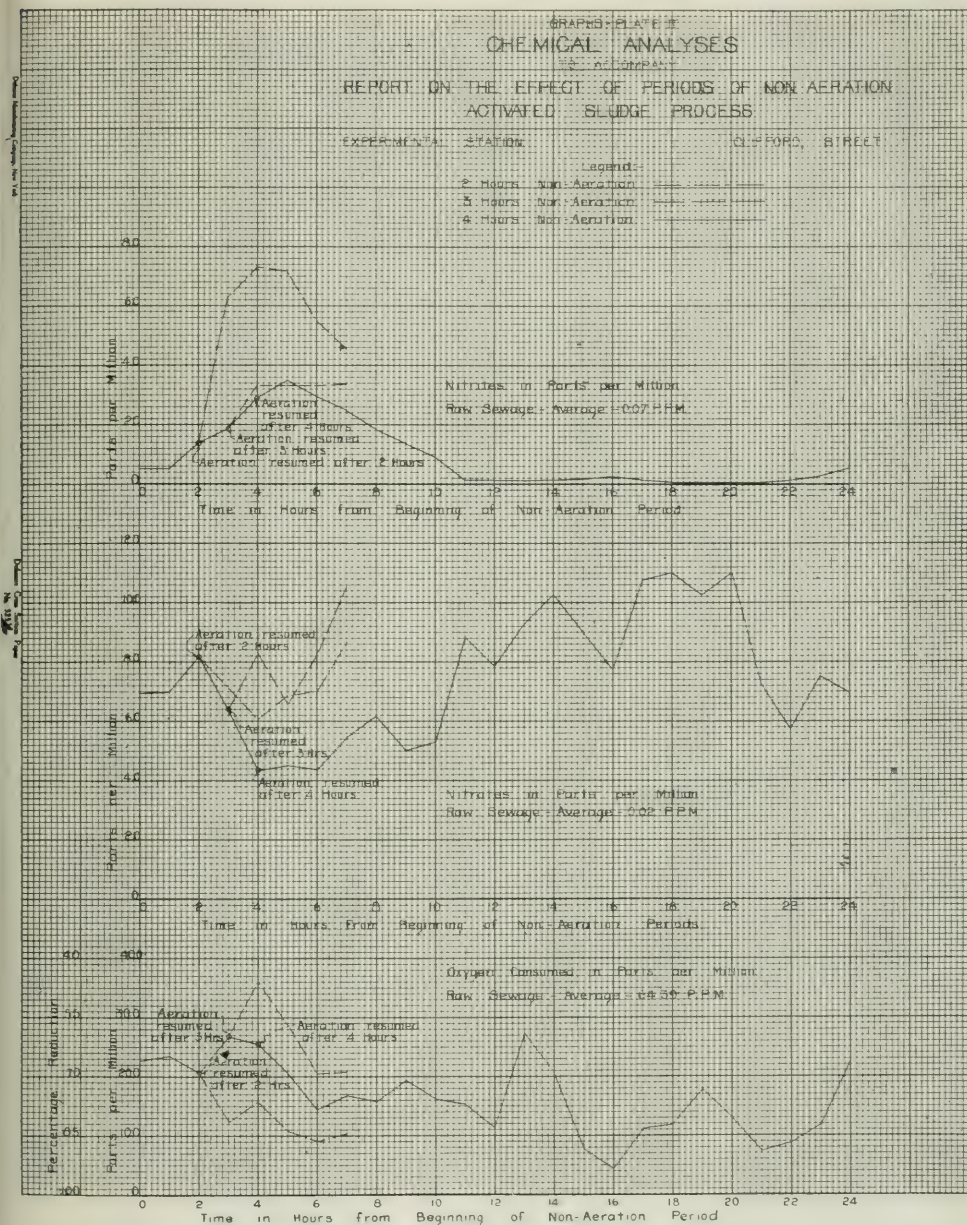
Albaminoid Ammonia in Parts Per Million
Raw Sewage - Average = 1.55 PPM



Dissolved Oxygen in C.C.I. Per Liter
Raw Sewage - Average = 6.61 C.C.I. Per Liter



The recovery from a chemical standpoint is not quite so rapid. The free ammonia nitrite and nitrate graphs for the four hour stoppage are quite regular, and indicate a recovery in seven hours after the resumption of aeration. Recovery in the alb. ammonia curve is apparent in about three hours, and in the dissolved oxygen in two hours. The oxygen consumed graph is very irregular and should be studied in conjunction with the suspended solids. Unfortunately it was impossible to determine total and suspended solids along with the other tests. Obviously though, turbidity in the effluent will cause an increase in the oxygen consumed. The tests with a two and three hour stoppage have not been carried on long enough to make any definite statements in regard to final recovery.



A further series of tests were carried on to investigate the effect of chlorination on the effluent during the stoppage period. Five and ten parts per million of chlorine were used and storage periods of fifteen and thirty minutes adopted. 18-22°C., and 37°C. plates on plain agar and B. Coli tests to one one hundred thousandths cc. were run on all chlorinated samples. The following table gives an average of the efficiency obtained on all samples.

TABLE NO. 6.

P.P.M. Cl	Storage Period	Efficiency (Average 19-22c.	37c.	B. Coli	Number of Samples
5	15 Min	81.6%	65.7%	44.3	27
5	30 "	94.4%	82.9%	65.8	27
10	15 "	85.4%	78.2%	48.0	27
10	30 "	96.5%	86.5%	96.0	27

Apparently chlorine is not particularly efficient with an effluent of this character

REPORT ON THE FERTILIZER VALUE OF ACTIVATED SLUDGE

by

H.D. BROWN, B.A., M.Sc.

PREFACE by F. A. DALLYN, B.A.Sc., C.E., M.E.I.C.

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PREFACE

F. A. DALLYN, C. E., CHIEF DIVISION OF SANITARY ENGINEERING

The experiments which were conducted by Mr. Brown, and are reported upon in the accompanying article deal with one phase of the sewage sludge disposal problem, the utilization of an otherwise waste material, realizing for it a market and return, which in a large measure, would meet the cost of disposing of an otherwise troublesome product. Various chemists and agriculturists have from time to time, advocated the recovering of nitrogen from excremental matter, and unattractive as the industry may appear, it has progressed on a considerable scale in both China and in France. The practice of water carriage of sewage in the modern city does away with the possibility of a direct recovery from the solid excremental matter and the recovery can only take place through the development of some system of sewage disposal designed with that end in view. The activated sludge method which has been developed within the past five years holds out the greatest promise for this purpose. It is estimated that by this method approximately 15.4% of the total available nitrogen present in the solid and liquid excrement may be recovered as fertilizer base. Tables Nos. 1, 2 and 3 may be used to arrive at this figure.

TABLE NO. 1.—WEIGHT IN POUNDS OF THE SOLID AND LIQUID EXCREMENTS PER CAPITA OF URBAN POPULATION PER YEAR

FÆCES			URINE		
Total	Organic Nitrogen N.H. 3	Phosphates	Total	Organic Nitrogen N.H. 3	Phosphates
72	1.07	1.50	941	8.43	3.78

Total recovery possible, approx. 1 lb. per Capita per year.
50,000 Tons of N.H. 3.

TABLE NO. 2.—NITROGEN CONTENT OF ACTIVATED SLUDGE

Authority	Dry Bases	10% Moisture
Edward Bartow—Aug. 27th, 1915.....	4.0 - 6.4	
W. R. Copeland—Dec. 31st, 1915.....		3.5 - 7.4
W. D. Richardson—Dec., 1916.....	4.0 - 5.5	
River Department—City of Manchester, 1918.....	6.4	
Experiment Station P.B. of H. Ontario, 1920.....		3.5 - 6.0

TABLE NO. 3—QUANTITY OF ACTIVATED SLUDGE PER MILLION GALLONS
URBAN SEWAGE (Dry Basis)

William R. Copeland, Milwaukee, 1915.....	1000 pounds
City of Manchester—Annual Report, 1918.....	1000 pounds

In Canada approximately 60.1% of the population is urban. In Ontario, according to the municipal census of 1920, 62.3% of the population is urban. The activated sludge process of sewage disposal therefore holds out at the present time, the greatest promise of any process of returning to the land those nitrogenous compounds so essential for soil productivity.

In conjunction with Mr. Brown's report, tables No. 4 and No. 5 are of interest, as showing the relativity of the several nitrogenous fertilizers in agriculture.

The three principal components of Fertilizers in various manures and fertilizer material

TABLE NO. 4—COMPARATIVE YIELDS WITH NITROGENOUS FERTILIZERS
AT ROTHAMSTEAD, 1909-1914
(Chile Nitrate 100)

Crop	Chile Nitrate	Amm. Sulphate	Calcium Cyanamide	Nitrate of Lime	No. 5 Nitrogen
Barley (Little Hoosfield, 1919)					
Grain.....	100	102	94	96	59
Straw.....	100	90	102	114	67
Marigolds (Little Hoosfield, 1911)	100	76	72	82	63
L. Knott Wood, 1912	100	.....	.....	100	62
Wheat (Little Hoosfield, 1910)					
Grain.....	100	91	83	76	57
Straw.....	100	79	62	96	40
Hay (Great Field, 1914).....	100	.....	83	.....	68

TABLE NO. 5—PERCENTAGE ON DRIED BASIS

Source of Fertilizer value	Fresh Fæces			Fresh Urine		
	Nitrogen	Phosphate	Potash	Nitrogen	Phosphate	Potash
1. Horse Manure.....	4.4	3.5	3.5	15.5	.....	15.0
2. Cow Manure.....	2.9	1.7	1.0	5.8	.....	4.9
3. Sheep Manure.....	5.5	3.1	1.5	19.5	0.1	22.6
4. Swine Manure.....	6.0	4.1	2.6	4.3	0.7	8.3
5. Mixture of above....	4.7	3.1	2.17	11.25	0.2	12.7
6. Human Excreta.....	10.0	11.0	2.5	6.0	1.7	2.0

Commercial and Non Commercial Sources	Fertilizer Components		
	Nitrogen	Phosphate	Potash
7. Dried garbage tankage residue.....	3.20	1.68	1.20
8. Ashes from garbage incinerators.....	.....	2.71	2.0
9. Residue from destructive Distillation of Sludge.....	0	1.14	0
10. Tankage Abattoirs (Availability slow).....	10.5	.....	.....
11. Dried Blood Abattoirs (Availability rapid).....	16.5	.....	.....
12. Cotton Seed Meal (long growing crops).....	4.8	2.88	1.77
13. Fish Scrap (Menhaden average dry).....	11	16	.....
14. Fish Scrap Acidulated (Compared with dried blood slow).....	6	3	.....
15. Basic Slag (four lime phosphate).....	.....	15-19	.....
16. Acid Phosphate (monocalcic phosphate).....	.....	16-18	.....
17. Potassium Carbonate, Sulphate and Muriate (only valuable).....	.....	.....	50.0
18. Nitrate of Soda (commercial).....	15.65	.....	.....
19. Calcium Cyanamide.....	15.19	.....	.....
20. Sulphate of Ammonia.....	20.55	.....	.....
Orchard Fertilizers			

Canada has never presented a very large market for nitrogenous fertilizers in spite of its well known position as one of the world's leading producers of wheat and oats. The reason for this is apparent when one appreciates the rapidity with which the area under cultivation has been extended by the opening up of vast tracts of virgin land in the west. There is little question however, but in the course of time the use of fertilizers will have to become general, if the productive areas in the vicinity of the large urban centres are to be maintained, and this applies especially to the Niagara Peninsula and in the Valley of the Fraser River, and while there may be no immediate prospect of a large demand for nitrogenous fertilizers in Canada, the future requirements should be considerable.

The situation in the United States is possibly somewhat different to that in Canada, owing to the fact that in that country there has developed (both for home and foreign markets), a considerable production of organic ammoniates for fertilizing purposes. These are obtained principally from cotton seed meal, abattoir and proprietary tankage, dried blood, waste leather, etc., and fish scrap all of domestic origin. The production of cotton seed meal in that country seems to be the determining factor in the price of nitrogenous fertilizers, constituting as it does such a large proportion of the organic ammoniate used.

In recent years all of the five large packers, as well as several others are engaged in preparing animal foods from selected tankage. The importance of this animal food industry is illustrated by the fact that during 1913, Messrs. Swift & Company produced a greater quantity of animal foods than they did of tankage. The export of cotton seed meal for stock feeding has also considerable influence upon the price of the home product.

TABLE NO. 6—WORLD'S PRE-WAR PRODUCTION
OF COMBINED NITROGEN

Product	Metric Tons of Product		
	1910	1911	1912
Chile Nitrate.....	2,465,415	2,522,120	2,586,975
Am. Sulphate.....	1,053,994	1,198,363	1,327,508
			Approx. 50,000 tons
Calcium Cyanamide.....	30,000	52,000	95,000
Nitrate of Lime.....	25,000	50,000	75,000
Total.....	3,574,409	3,822,483	4,084,483

TABLE NO. 7 WORLD'S PRE-WAR CONSUMPTION
OF COMBINED NITROGEN

Product	Metric tons of Product		
	1910	1911	1912
Chile Nitrate.....	2,359,652	2,401,392	2,530,645
Ammonium Sulphate.....	1,000,000	1,000,000	1,200,000
Synthetic Products.....	50,000	75,000	150,000
Total.....	3,409,652	3,476,392	3,880,645

Approximately 40% of the world's total production of fixed nitrogen is devoted to nitrogenous fertilizers. The industry is one of great magnitude; this is shown by Tables Nos. 6 and 7. In a report made by the agricultural department of Reconstruction Committee, 1918, it is pointed out that all sources of nitrogen supply must be tapped to the fullest extent, and the hope was expressed that the resources at the command of the British Government in the matter of nitrogenous fertilizers may be so developed as to render that country (England and Wales) in the event of another war, independent of further supplies.

The use of nitrogenous fertilizers both on this continent and in continental Europe has been greatly stimulated by reason of the policy of food production so much in evidence during the war. Responsible authorities predict that the sale of nitrogenous fertilizers in the British Isles will, in a very short space of time, quadruple that sold before the war, especially if international competition should make available combined nitrogen in marketable form at somewhat cheaper rates than have held hitherto.

The production costs have been indicated at some length in the report of the Nitrogen Products Committee, and are shown in Table No. 8. The limitations surrounding the different processes are not pertinent to this report, but the primary product is shown as underlined in Table No. 8.

TABLE NO. 8.—PRODUCTION COSTS OF NITROGEN COMPOUNDS

Cost of Combined Nitrogen in Form Specified and of Product.								
	1	2	3	4	5	6	7	8
Initial Process or Product	Pure Ammonia 100% liquor 20-25% N.H. 3	Ammonium Sulphate 25% N.H. 3 Packed	Calcium Cyanamide 19.5 per per cent. N.	H.N.O.3 Calculated in 100% diluted acid	H.N.O.3 Calculated as 100% con- centrated acid	Nitrate of Lime 13% N Packed	Sodium Nitrate 15.6-15.65 per cent. N Packed	Ammonium Nitrate 35 per cent. N.
Chile Nitrate Based on (1911-1913)..... Market Price England & Wales	.....	.....	.....	.....	100.48 22.33	.....	67.21 10.52	84.56 29.59
By-product Ammonium..... (1911-1913 market price)	61.59 50.74	66.10 13.61	.....	76.19 16.93	89.22 19.94	95.31 12.39	96.50 15.05	74.72 26.15
Arc Processes..... \$10 per K.W. year	.....	.....	.....	28.08 6.24	37.08 8.24	43.76 5.69	45.22 7.05	49.63 17.37
Cyanamide Process..... \$10 per K.W. year	25.71 21.18	34.36 7.07	20.59 4.01	37.57 8.35	49.95 11.10	55.77 7.25	56.94 8.88	37.13 12.99
Haber Process..... (Probable Cost)	20.64 17.00	29.29 6.03	.....	31.95 7.10	44.15 9.81	50.00 6.50	51.18 7.98	31.66 11.08

NOTE:—The quantities of combined nitrogen obtained by the Haber, Calcium Cyanamide and Arc processes are in the approximate ratios of 7:3:1 per unit weight of total fuel consumed, and an increase diminution in the price of fuel to the extent of 1s. per ton affects the production costs per metric ton of combined nitrogen by as much as 2.63 pounds in the case of the arc process by 0.84 pounds in the case of calcium cyanamide, and by 0.36 pounds in the case of the Haber process.

The following limitations to the use of combined nitrogen in agriculture have been generally recognized.

Calcium nitrate when originally manufactured was very hygroscopic and therefore inconvenient to handle and to put on the land. Fortunately this drawback had almost entirely been overcome just prior to the war. The material is an excellent fertilizer, its lime content being a valuable asset in soils deficient in this constituent, though an excellent fertilizer for light soils it possesses the disadvantage of causing the deflocculation of clay, and tends to make heavy soil sticky. Experiments with this material, I understand, in the wet rice fields, have been accompanied with disastrous results due to the nitrate breaking down to a toxic nitrite. In such soils the calcium cyanamide replaces the Chile nitrate.

Calcium Cyanamide—The dusty character of this material constitutes a drawback to its use. It is understood that recent improvements in the treatment of the raw product overcome this difficulty. The presence of a certain amount of dicyandiamide is detrimental as it is toxic to plants. The decomposition product is ammonia. The free and combined lime in calcium cyanamide is an asset of some value in certain soils, such as those deficient in lime.

Ammonium sulphate is used very generally as a fertilizer, is not readily available, and if acid is of a distinct disadvantage in certain soils.

Organic Ammoniates all possess the disability of not breaking down rapidly in soil; their utility in hastening crop maturity is of questionable value.

The evidence which is submitted with respect to the behaviour of activated sludge covers these several points in some detail, and would indicate that this material is especially adapted for those demands of agriculture for early-maturity and general improvement in the humus content of the soil.

The situation with respect to the productive capacity of the world of fixed nitrogen has somewhat changed, owing to the acceleration of the production of nitrogen by fixation processes made necessary by the cutting down of Germany's supply during the war, and whereas only 10% of the world's visible supply in 1914 was obtained from such processes, the post-war output of these industries may account for as much as 28% of the available supplies as compared with 30% in the case of the by-product ammonia industry, and 41% with the Chile nitrate industry.

TABLE NO. 9—SUMMARY OF PRE-WAR AND POST-WAR POSITION PRODUCTIVE CAPACITY OF THE WORLD

Product or Process	Production or estimated productive capacity in terms of fixed nitrogen. Metric Tons		
	1913	1916-17	Post-War
Chile Nitrate.....	390,000	465,000	465,000
Ammonium Sulphate.....	290,000	340,000	340,000
(By-product-Synthetic)	.....	.....	100,000
Calcium Cyanamide.....	60,000	190,000	190,000
Haber Process.....	6,000	100,000	.....
(Ammonium Sulphate)	.....	.....	.....
Arc Process.....	17,000	27,000	27,000
(Weak nitric acid)	.....	.....	.....
Total.....	763,000	1,122,000	1,122,000

Table No. 9 gives a summary of the pre-war, war, and post-war position of the world's productive capacity. It is interesting to read in connection with Table No. 9, the observations and conclusions of the Nitrogen Products Committee.

"Notwithstanding the uncertain elements in the post-war position of the nitrogen industries, a careful review of the possibilities leads to the following conclusions:—

- (a) The post-war supply of fixed nitrogen potentially available for the world's requirements is likely to be to the order of 1,000,000 metric tons or over per annum, an increase of from 30% to 40% on the pre-war production.
- (b) In spite of the great extension of the nitrogen fixation industry during the war, the total increase in the world's output of combined nitrogen does not appear to exceed the figure that would have resulted from a continuation, under normal conditions, of the rate of growth in consumption prevailing in the pre-war period.
- (c) The demand for nitrogenous fertilizers is already considerably in excess of the pre-war consumption, and in the event of a fall in the price of fixed nitrogen to say £40 or £45 per metric ton, the Committee is of the opinion that the demand would increase at an even greater rate than hitherto.
- (d) There will probably be ample scope in the post-war markets for all forms of nitrogenous fertilizers, both non-synthetic and synthetic.
- (e) The industrial demand for nitric nitrogen is likely to be met in the future by means of synthetic processes, which show to considerable advantage as compared with the Chile nitrate retort process.
- (f) As a result of the modifications due to the war, the Chile nitrate industry may account for about 41%, the by-product ammonia industry for about 30%, and the synthetic industries for about 28% of the post-war supplies of combined nitrogen.
- (g) The marketing of large quantities of synthetic ammonium sulphate and calcium cyanamide consequent on the further development of the Haber and cyanamide processes must influence the future price of combined nitrogen, and may even control it.
- (h) The producers of combined nitrogen may eventually have to face a competitive price of perhaps 7 pounds to 8 pounds per metric ton for ammonium sulphate and 6 pounds to 7 pounds per metric ton for cyanamide.
- (i) The Chile nitrate industry, in order to hold its position against the cheapest synthetic fertilizers may be faced with the necessity of making substantial reductions in price, perhaps to a figure 8 pounds per ton or even less.
- (j) With regard to nitrate fertilizers, the Chilean industry will probably be able to hold the market against the synthetic processes. The economic and financial position of Germany during the years succeeding the war may, however, induce that country to resort to the manufacture of synthetic nitrates, so that the possibility of the partial or total loss of the German market must be contemplated.

NOTE—Page 90—Season 1918-19.

453 - Owing to the war policy of food production the agricultural demand for fixed nitrogen in the form of ammonium sulphate and nitrates has thus attained at the present time a figure of the order of 60,000 tons per annum, as compared with pre-war consumption of 25,000 tons.

R.B.H. 10

- (k) The by-product ammonia industry, although capable of meeting the competition of synthetic products by raising, within limits, the prices of coal gas, coke, benzol, tar, etc., to compensate for a fall in the price of sulphate, may be faced with the necessity for making substantial reductions in the price of sulphate perhaps to a figure approximating to the lowest market price hitherto recorded in the United Kingdom.
- (l) The relative positions of the different countries as outlined above may be modified to an important degree by the cost of labour and materials, and more particularly by the world shortage of shipping. As long as the shortage exists, it will operate to the substantial advantage of producers who have a local market available."

F. A. DALLYN

REPORT ON THE FERTILIZING VALUE OF ACTIVATED SLUDGE

BY H. D. BROWN, ASSISTANT, EXPERIMENT STATION, DIVISION OF SANITARY
ENGINEERING, WITH PREFACE

Introduction. The three most essential elements of plant food, other than air and water are nitrogen, potash and phosphorus. The market price of any fertilizer reflects the percentage of these three. Nitrogen is the constituent most demanded in fertilizers, for it is the first element to become deficient in the soil. This is due to its ready conversion into ammonium compounds which are soluble and drain away. Potash and phosphorous occur more regularly in sufficient amounts than nitrogen, and are more stable in soils, consequently they do not need as frequent application or in as large amounts for average grain, fruit or vegetable crops. Thus the application of nitrogen in available form usually produces a more direct and favorable response than that of the other two elements. It has been computed that over 59% of the money paid for fertilizers is paid for nitrogen and about 25% for potash and phosphoric acid.

The importance of increasing crop production lies in the widening market for fresh fruit, vegetables and grain. The yield of these is directly proportional to the soil fertility to a high percentage. The farmer and gardener who pays little attention to the details of plant requirements frequently does not understand the principle involved. The soil decreases in fertility as crop after crop is taken from the land under protracted cultivation. The essential elements are used up and production greatly affected. This has long been recognized in European countries, and an intelligent expenditure on fertilizers made. The statistics show heavier average crops where fertilizers are used intensively in a systematic way.

It is evident then that the investigation of by-products which can be adapted for use in increasing the fertility of the soil is a matter of paramount importance.

Where such a material can be obtained by converting an otherwise waste product, such as sludge into a satisfactory fertilizer, the economic advantage is so much the greater.

Sewage disposal is generally regarded as a costly and difficult operation. It is sooner or later forced upon every urban municipality. The utilization of sewage sludge as a fertilizer benefits in three ways. It avoids the pollution of waterways; it returns to the municipality some of the cost of disposal, and it provides a means of returning to the soil substances essential to plant life. When converted into "activated sludge" it is an attractive form, and should be readily marketable.

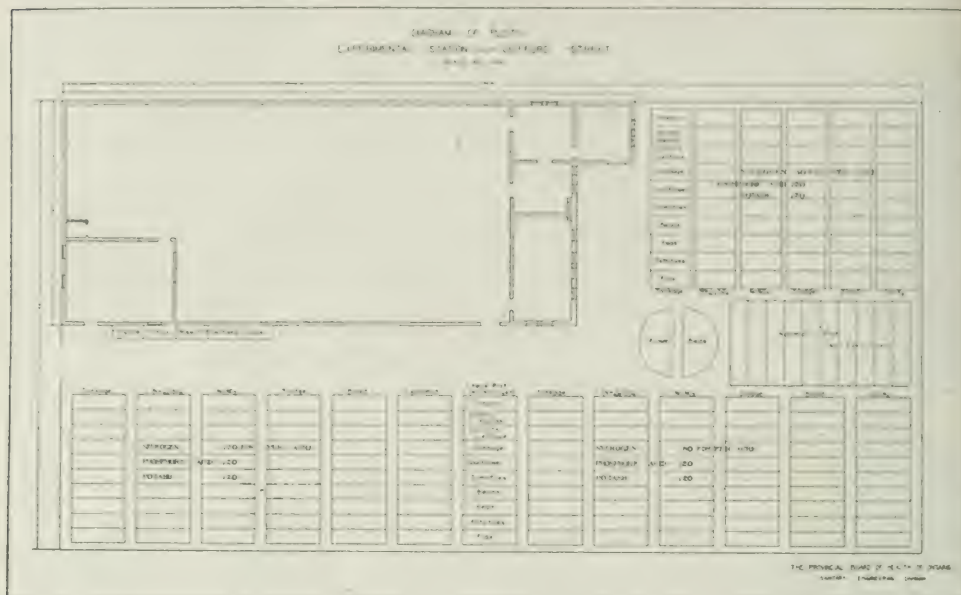
Potash and phosphorus are generally obtained from mineral sources and are considerably less expensive per unit than is nitrogen. The world's supply of nitrogenous fertilizers has heretofore been obtained from the great deposits of nitrate and guano in South America, and manure from domestic sources. The cost of nitrogen per unit obtained from mineral and nitrogen fixation processes is so excessive, and the demand for nitrogenous fertilizers is so great that all sorts of organic wastes from which nitrogen can be obtained more cheaply are being utilized. Abattoirs have established great subsidiary industries. In addition fish scrap, fleshings from tanneries, wool waste and garbage tankage, and cotton seed meal are being processed for their nitrogen content.

Object. The present paper deals with experiments on sewage sludge which were undertaken during 1920 to gain some information as to the commercial value of "activated sludge" as a fertilizer. The experiments were arranged to determine the availability of the nitrogen content, and to compare it with other nitrogenous fertilizers on the market.

The availability of the nitrogen for plant food varies with the rate of decomposition of these various nitrogen containing substances. This availability of nitrogen is important for it must occur at the time when the plant needs nourishment for its growth, and should last until the crop is mature. The best prices for market garden produce are realized at the beginning of the season. Again, any fertilizer which hastens maturity even by a few days will increase profits enormously. Prices are much higher earlier in the season and frost may be avoided.

Sludge Preparation. Incoming raw sewage was inoculated with sludge, called "activated sludge." The latter had certain properties which enabled it to rapidly oxidize the organic material of the sewage when intimately mixed with it in the presence of air. The mixture of sludge and sewage was kept in rapid circulation by discharging air through porous plates into it for a period of about four hours. This mixture was then allowed to settle for about thirty minutes. The clarified liquor was run off and a certain percentage of the settled sludge was used for inoculating the incoming sewage, the remainder being drawn off for drying as a fertilizer. About 95% of the bacteria remain in the sludge, and 5% in the clarified effluent. The sludge was air dried in the present instance, and ground in a 40 mesh-fine ball mill. The product "activated sludge" or "dried sludge" was a grayish powdery substance, quite inoffensive in odour, and much like fine ashes in appearance. An analysis of this powdery material called "dried sludge" showed a 4.5% nitrogen content. This percentage was probably lower than if drying had been more rapid, a certain percentage of nitrogen being lost in putrefaction. The moisture content was 14%, and could be reduced by a more thorough method of drying.

Plots. The experiments were conducted in a field one-third of an acre in size, adjacent to the Experimental Station, of the Provincial Board of Health, Clifford Street, Toronto. The area 100 ft. by 190 ft. was laid out in plots as per diagram in an "L" shape around the building, which occupied about one quarter of the ground. The field was divided into twenty plots (two check plots and three sections of six plots each). The plots ran east and west with no interference of sunlight by buildings. Six different fertilizers were used on each of the three sections so that there were three plots of cyanamide, dried blood, activated sludge, sodium nitrate, ammonium sulphate and tankage. The amount of each fertilizer used was calculated so as to give an equal amount of nitrogen to each of the six plots in one section and all plots were also given a uniform supply of phosphoric acid and potash. Superphosphates were the sources of the phosphoric acid and Potassium Chloride the source of Potash. Each section of plots was treated with a different amount of the nitrogenous fertilizers so as to have a low, a moderate and a high section in regard to their nitrogen content. The first section received fertilizer at the rate of 40 lbs. of nitrogen per acre, the second section 80 lbs. per acre, and the third section 120 lbs. per acre.



With the nitrogen content thus regulated in a low, moderate and high amount, it was necessary to give the plants a regulated definite and sufficient supply of the other two food essentials, phosphoric acid and potash. These had to be in excess, else they would limit the nitrogen effect. Toxicity was the limiting factor in their amount. Two hundred pounds of each per acre was applied for this purpose to all the plots of the three sections. Two additional plots were laid out for comparisons. One designated the "normal" plot had no fertilizer added to it, while the other, the "check" plot was given potash and phosphoric acid but no nitrogen. The plots are subsequently referred to as N40, N80, N120, Check and Normal, and numbered from one to six in the order CaCN₂, Blood, Sludge, Nitrate, Sulphate and Tankage as shown in Diagram of plots

Size of Plots. The total area used was 190 ft. by 50 ft. and 60 ft. by 50 ft.; or 1-3 acre. The N40 plots were 9 ft. by 40 ft., or 360 square feet; the N80 plots and N120 plots, 12 ft. by 33 ft., or 400 square feet, so that each plot was approximately 1-100 acre. The experiments were thus on a large enough scale to be of practical importance under field conditions, and not merely the laboratory or pot type. The plots were staked out with corner posts and separated from each other by paths two feet wide. Around the whole area a wire fence was erected and flower beds arranged in the vacant space.

Application of Fertilizers. The relative weights of fertilizers were proportioned according to the size of the plots, as follows:—

TABLE I.

	Series N40	Series N30	Series N120
Cyanamide containing 20% N.....	2 lbs.	4 lbs.	6 lbs.
Activated Sludge containing 5% N and 14% moisture	7 lbs.	13 lbs.	20 lbs.
Sodium Nitrate	2 lbs.	4 lbs.	6 lbs.
Ammonium Sulphate	2 lbs.	4 lbs.	6 lbs.
Tankage	7 lbs.	13 lbs.	20 lbs.
Tankage containing 7% P ₂ O ₅	3 lbs.	5 lbs.	9 lbs.
Dried Blood containing 10% N.....	4 lbs.	8 lbs.	12 lbs.
Superphosphates containing 16% P ₂ O ₅	12 lbs.	12 lbs.	12 lbs.
Potassium containing 50% K.....	4 lbs.	4 lbs.	4 lbs.

On the tankage plots the amount of superphosphates was cut down by the amount of phosphoric acid which the tankage contained, namely, 3, 5 and 9 lbs., and the N40 plots received 1-10 less on account of their size. Thus all plots except the normal were given phosphoric acid at the rate of 200 lbs. per acre. The sludge was prepared at the Experimental Station and the other fertilizers were obtained commercially.

Preparation of Soil. The soil was worked as uniformly as possible during the spring and was harrowed and disced just prior to planting. The fertilizers were thoroughly mixed and spread uniformly by hand a couple of days before seeding and planting. They were thoroughly raked in at the time of application, and the plots were cultivated as uniformly as possible throughout the season, keeping the soil loose and free from weeds.

Planting and Seeding. The seed was obtained from Messrs. Simmers Company, Ltd., and planted as follows:—

TABLE II.

Plant	Variety	Amt. Sown	Date Sown	Date Planted out.
Flax		4 ft. wide	June 1st.	
Potatoes	"Cobblers"	2 Rows	June 2nd.	
Peas	"Little Marvel"	2 Rows	May 31st.	
Beans	"Golden Wax"	2 Rows	May 31st.	
Tomatoes	"Bonny Best"	1 Row	April 23rd.	June 3rd.
	Carolina	1 Row	April 23rd.	June 3rd.
Cauliflower	Danish Giant	2 Rows	May 7th.	June 4th.
Cabbage	Danish Ball	2 Rows	May 13th.	June 15th
Carrots	Danvers Half Long	1 Row	June 2nd.	
Seed Onions	Adanac	2 Rows	June 2nd.	
Lettuce	Nonpareil	1 Row	June 2nd.	
Tobacco	White Burley	1 Row	May 22nd.	July 15th.

Records. Records were kept throughout the season in tabulated form. Time of sowing, transplanting and setting out are given in Table II., and the time of each vegetable's appearance, and early growth compiled in Table IV. A log of sprayings, the prevalence of insect pests, etc., was also kept. The weights of marketable produce are summarized in Table III, earliness of growth in Table IV, and earliness of maturity in Table V.

TABLE

Plot-4' by 8'

TABLE OF WEIGHTS

N-40 lbs. per Acre

Table III.	CACN2	Blood	Sludge	Nitrate	Sulphate	Tankage	CACN2	Blood
Flax								
Weight of Plants.....	7.12	8.12	8.4	5.2	4.0	4.8	7.7	12.4
(in lbs. and oz.)								
Length of Fibre.....	24"	26"	27"	24"	21"	26"	23"	21"
at maturity								
Potatoes								
Total Wt. Sept. 3.....	3.11	6.15	9.3	6.5	5.8	5.11	7.1	8.4
Peas								
Green-podded.....	2.0	2.5	2.12	1.11	2.2	1.2	1.11	3.0
Beans								
	2.4	3.8	1.4	2.6	2.2	.12	3.15	6.13
Tomatoes								
Ripe—Aug. 18.....	48.4	51.7	48.4	14.13	12.0	23.7	58.11	78.0
Green—Oct. 28.....	3.7	8.2	18.5	1.4	.0	2.11	5.0	7.14
Total Weight.....	56.11	59.7	66.9	16.1	12.0	26.2	63.11	85.14
Cauliflower								
% plants mature.....	70	90	90	50	50	30	79	90
Total weight.....	27.11	35.3	37.4	22.11	17.11	9.1	42.1	54.4
Av. Wt. per head.....	3.15	3.15	4.2	4.8	3.8	3.0	4.3	3.13
Av. Wt. per head.....	N40 chk.	3.13 3.12	N80 nor.	4.1 3.14	Nizo	4.2		
Cabbage								
Total Wt.....	Stolen		1.6	.7	5.0	3.12	.12	5.10
Wt. per dozen.....			4.0	4.10	5.0	3.0	3.2	3.13
Carrots								
% Plants mature.....	100	100	100	100	100	80	95	100
Total Weight.....	34.11	54.3	57	58.14	46.12	26.5	98.7	111.3
Av. Wt. per head.....	3.4	5.4	5.7	5.8	4.6	3.2	7.0	7.0
Onions								
Total Weight.....	1.7	2.9	5.6	9.14	14.1	6.6	.6	2.5
Wt. per dozen.....	1.10	2.2	2.12	2.2	2.4	1.12	.12	1.8
Tobacco								
Total Weight.....	21.8	19.8	20.8	20.0	14.0	11.8	9.8	16.8
Av. Wt. per plant.....	5.4	4.9	4.14	5.0	3.5	3.9	4.5	4.2

III.

Plot-4' by 12'

Plot-4' by 12'

N-80 lbs. per Acre.

N-120 lbs. per Acre

N-O

Sludge	Nitrate	Sulphate	Tankage	CaCN ₂	Blood	Sludge	Nitrate	Sulphate	Tankage	Normal	Check
9.3	8.11	9.5	9.3	8.6	8.6	8.2	8.3	9.10	3.7	7.7	10.9
24"	23"	24"	27"	28"	24½"	29"	23"	28"	24½"	18"	27"
9.2	9.11	10.13	7.12	9.0	7.13	12.4	8.11	3.13	6.11	8.4	5.0
2.4	3.6	1.9	1.3	1.0	2.2	Soil 1.12	Soil .5	2.0	1.10	2.7	Soil .12
8.6	9.6	6.3	Soil .10	1.12	2.5	3.3	2.11	4.10	6.3	5.15	Soil .14
68.3	41.11	51.8	12.12	55.15	55.6	37.11	42.13	46.10	52.12	65.13	28.0
9.13	10.0	10.7	10.9	10.5	17.1	25.1	15.10	8.7	10.3	15.14	14.0
78.0	51.11	61.15	23.3	66.4	72.7	62.12	58.7	55.1	62.15	81.11	42.0
80	35	30	60	90	85	80	55	80	80	40	100
43.9	49.5	44.0	39.0	60.2	53.11	53.9	38.0	46.8	48.11	23.4	60.5
4.0	4.1	4.0	4.5	4.4	4.2	4.7	4.12	3.14	4.1	3.14	3.12
9.14	9.13	8.1	10.2	11.14	9.2	4.3	2.2	.14	3.0	4.0	1.9
3.10	3.2	3.3	3.4	4.5	4.2	4.12	4.4	3.8	4.8	1.4	3.2
75	90	95	60	100	95	75	75	95	100	100	90
70	109.8	83.3	58	103.7	80	57	54.3	77.8	69.8	50.3	75.9
7	7.5	6.0	6.3	6.8	5.7	5.7	5.4	5.5	4.6	3.1	5.0
6.0	not mat. soil	2.6	5.8	6.11	2.11	4.2	1.0	1.3	.14	not ma- ture	8.6
2.2		1.4	1.12	2.4	2.6	2.12	1.0	1.6	q.4		2.6
16.8	not mat. soil	16.0	8.0	19.8	17.0	19.0	12.8	20.3	10.8	11.0	6.8
4.2		4	4	4.9	4.2	4.8	4.4	4.2	3.6	2.7	2.4

EARLY ACCELERATION OF GROWTH—TABLE IV.

Number of days before uniform growth appeared	N 40 Section						N 80 Section						N 120 Section						Check	
	CaCN ₂	Blood	Sludge	Nitrate	Sulphate	Tankage	CaCN ₂	Blood	Sludge	Nitrate	Sulphate	Tankage	CaCN ₂	Blood	Sludge	Nitrate	Sulphate	Tankage		Normal
Flax.....	13	10	4	11	9	4	13	11	6	11	9	6	7	9	6	11	11	11	7	9
Potatoes.....	16	16	13	14	16	13	15	14	14	14	14	13	14	15	13	13	13	14	14	14
Peas.....	14	14	8	10	9	9	15	15	8	9	9	9	10	7	8	10	14	10	10	8
Beans.....	12	12	10	11	11	10	14	12	9	9	9	12	10	10	9	12	12	10	14	9
Carrots.....	15	10	10	11	10	12	16	16	14	16	16	16	16	16	14	14	14	12	18	16
Onions.....	14	14	11	12	12	12	16	16	14	15	15	14	14	14	12	13	13	12	18	18
Grading 10 days after planting																				
Tomatoes.....	5	4	1	2	3	6	5	4	1	2	3	6	5	6	2	3	4	1	.....
Cauliflowers.....	6	4	1	2	3	5	6	4	1	2	3	5	6	2	1	3	4	5	.....
Cabbages.....	5	4	1	3	2	6	6	4	1	2	3	5	2	3	1	4	5	6	.....
Tobacco.....	4	6	1	5	2	3	5	4	3	1	2	6	3	4	1	5	2	6	.....

EARLY MATURITY—TABLE V.

N 120 Section

N 80 Section

N 40 Section

Flax..... Date in July when in Flower	24th	19th	14th	19th	19th	16th	17th	17th	14th	16th	16th	14th	19th	17th	18th	18th	18th	19th	20th	20th	20th	20th	20th	20th	Normal	Check
Peas..... First Marketable Crop	Aug. 10th	Aug. 5th	July 23rd	July 30th	July 27th	July 28th	Aug. 10th	Aug. 6th	July 27th	July 26th	Aug. 2nd	Aug. 4th	Aug. 10th	July 27th	July 30th	Aug. 11th	Aug. 8th	Aug. 6th	Aug. 4th	Aug. 10th	Aug. 11th	Aug. 8th	Aug. 6th	Aug. 4th	Aug. 10th	
Tomatoes..... First Marketable crop in August	25th	25th	18th	18th	21st	20th	19th	20th	18th	18th	18th	21st	23rd	19th	18th	20th	18th	21st	25th	25th	25th	25th	21st	25th	25th	
Beans..... First marketable crop in August	5th	4th	3rd	4th	3rd	5th	7th	3rd	1st	2nd	2nd	5th	5th	3rd	1st	5th	3rd	2nd	3rd	10th	5th	3rd	2nd	3rd	10th	
Grading on August 1st																										
Potatoes.....	6	5	3	2	1	4	4	5	1	2	3	6	6	2	1	3	4	5	.....	.....	.....	.....	5	.....	.....
Cauliflower.....	3	3	2	1	5	6	2	6	3	3	5	1	3	4	2	1	6	5	.....	.....	.....	5	.....	.....
Cabbage.....	5	3	2	1	4	6	2	2	2	1	6	5	4	5	1	3	6	2	.....	.....	.....	2	.....	.....
Carrots.....	4	4	3	2	1	6	5	1	2	6	4	3	3	5	1	4	6	2	.....	.....	.....	2	.....	.....
Onions.....	6	3	1	3	2	5	5	3	1	....	4	2	3	2	1	6	4	5	.....	.....	.....	5	.....	.....
Tobacco.....	1	3	4	2	6	5	1	2	2	....	4	4	1	3	2	3	3	6	.....	.....	.....	6	.....	.....

The detailed information as to weekly observation of individual plots are thus summarized in three tables, which show early acceleration of growth, late availability of plant food and ultimate production.

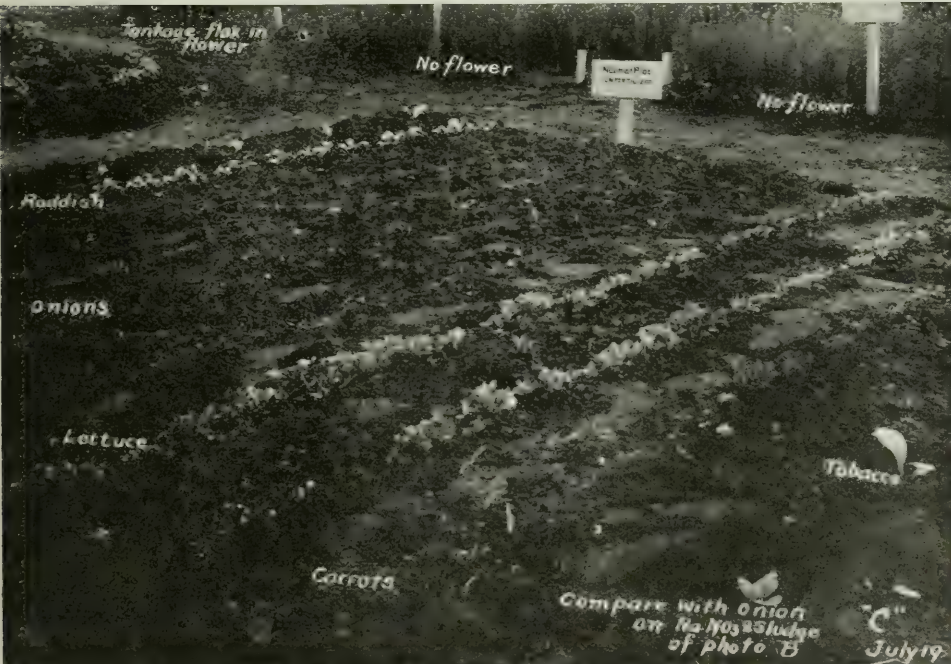
GENERAL OBSERVATIONS ON PLOTS



1.—GENERAL VIEW OF N40 AND NORMAL PLOTS.



2.—N40 SLUDGE AND NITRATE PLOTS, SHOWING ONIONS AND CARROTS.



3.—NORMAL PLOT SHOWING ONIONS AND CARROTS.

Flax. Sown broadcast on June 1st, a uniform growth above ground was seen on the sludge plots in 4 to 6 days, while on the Cyanamide and Blood plots it took up to 13 days as seen in table IV. Sludge and tankage plots gave the earliest growth. Nitrate and sulphate plots gave slightly later results and Blood and Cyanamide plots were the most tardy. The plots maintained in the same luxuriant order for the most part of the growing season and matured as seen in table V. The N40 plots were better than the N80 and N120 plots until the growing season was half over showing that the N40 plots had sufficient nitrogen content at this time. The stem growth on the N80 and N120 plots exceeded that on the N40 plots eventually and gave a stouter fibred flax on maturity. The accompanying photographs Nos. IV. and V. taken on July 19th, show the earlier maturity of Flax on the sludge plots. The flax on the N40 Sludge plot was above the sign post and was in full bloom, while on the adjoining plots of Nitrate and Sulphate, the flax was shorter and almost devoid of flowers. The flax was podded and ready for pulling at the end of August and yielded as per table III.



4.—N40 NITRATE AND SULPHATE PLOTS SHOWING FLAX.



5.—N40 SLUDGE PLOT, SHOWING FLAX.

Potatoes. The potatoes were planted on June 2nd, 20 hills per plot. The plants appeared above the ground in about two weeks, showing a slight variation on different plots, but not so marked as flax, probably due to the greater amount of nutriment in the tubers. Sludge again gave the earliest growth and maintained the lead in growth throughout the season. The fertilized plots were noticeably ahead of the unfertilized plot and slightly ahead of the check plot. Early spraying prevented insect pests throughout most of the season but "tip burn" affected the plants in August. The tops were consequently wilted by Sept. 1st and the crop taken up. During the season the N80 section gave best results on an average as was evidenced by the weights of the crop. Table III. shows that the Sludge plots in each case gave the heaviest yield, with the Nitrate and Sulphate plots next.

Peas. In the case of a leguminous plant, the results might not be expected to be so marked. The peas were sown on May 31, a month later than is advisable, but the plants made rapid headway. Again the sludge plots gave the most rapid early growth as seen in table IV., Tankage was next, Nitrate and Sulphate following.

The sludge plot N40 was in flower on July 3rd, and the Cyanamide not until July 15th. N80 section showed up very well throughout, but the results there and on N120 section were not so marked, owing largely to the season and lack of humus content in the soil. The N40 section seemed to possess sufficient nitrogen for the short growing season and this probably holds for the leguminous plants which utilize free nitrogen by the aid of Nitrogen Bacteria. The early maturity on the sludge plot was very noticeable on July 23rd, the N40 sludge yielded 1 lb. 9½ oz., while other yields ranged from 3 to 4 ozs., and the Cyanamide and Blood plots were just in flower.

Beans. The beans, like peas, were planted very late in the season and showed the same general results. There was a slight advantage for the sludge over the Nitrate, Sulphate, and Tankage plots in early growth. The weights of marketable beans are not so valuable on account of the loss of many plants early in the season. A small caterpillar infested the young plants and was not affected by sprayings as it attacked the plant beneath the surface.

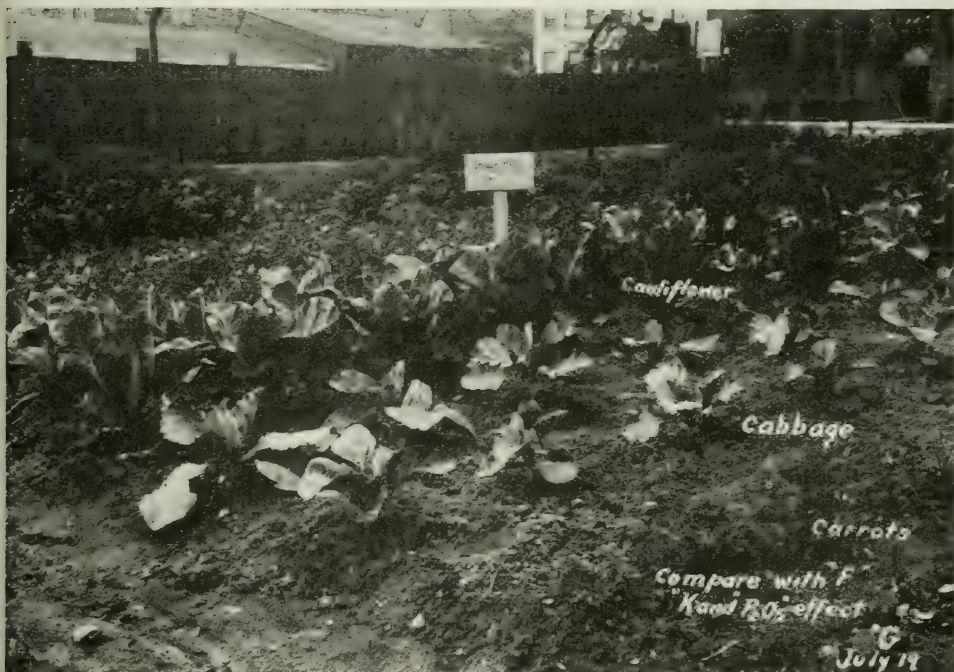
Investigations seem to indicate that the only successful method of counteracting this pest, is to soak the seed in a solution such as kerosene for a short time prior to planting. The earliest maturity was again evident on the sludge plots as shown in Table IV., the first picking of marketable pods was on July 29th, when all the sludge plots gave heavier yields than any other plots of their sections.

Tomatoes. The two varieties of tomatoes used gave good results. From seed sown April 23rd, planted outside on June 3rd, there were practically no losses. Table IV. shows the early advantage gained by the plants on the Sludge plots and the stimulation of growth by the Nitrate and Sulphate used. The plots not fertilized with Nitrogenous fertilizer were much behind the fertilized plots. Later in the season the Blood and Cyanamide plots became very luxuriant and the plants had to be staked up individually. The tomatoes on these plots were smaller than the average, but well formed and firm and in total yield exceeded all other plots. The normal plot gave large tomatoes, in this case and yielded well, but the Check plot produced very poorly. Table V. shows that the Cyanamide and Blood plots did not produce a marketable crop until nearly a week later than the Sludge. Nitrate and Sulphate plots again produced next earliest to the Sludge.



6.—NORMAL PLOT SHOWING CAULIFLOWER AND CABBAGE.

Cauliflower. Cauliflower seed was planted May 7th and the plants set out on June 4th, only 2-3 inches high. All fertilized plots seemed to stimulate growth and nearly all plants survived. In each section the Sludge plot growth was most noticeable and Blood gave a better growth than Tankage or Cyanamide. Cauliflowers seem to require additional nitrogen supplies for the N80 and N120 plants were larger and heavier than the N40 plants. All plots except the Normal had marketable plants by the middle of August and were utilized in an exhibit at the Toronto National Exhibition. The photographs taken on July 19th, show the backwardness of the Normal plot and the advantage given to the plants on the Sludge plots. Table III. gives the yield and average weight per head showing that sludge was valuable as a fertilizer and that 80 lbs. per acre of Nitrogen gives a good yield. The N120 section yield was slightly heavier but not proportional to the extra fertilizer used.



7.—CHECK PLOT SHOWING CAULIFLOWER AND CABBAGE.

Cabbage. With Cabbage the results were similar to those for Cauliflower. The plants were grown from seed sown on May 13th, and were planted out on June 15th. Despite their lateness the plants grew rapidly and were also exhibited during August in good condition, but small. Their firmness, leaf surface and colour were excellent. Early growth was stimulated as Table IV. shows, and Table III. gives the total and average weights at the time of marketing. N80 section gave the largest plants on maturity and seemed to have sufficient Nitrogen content. The Normal plot was much behind the fertilized plots and showed a definite deficiency in food material.

Sludge gave good results both in time of maturity and weight of plants.



8.—N120 NITRATE PLOT SHOWING CAULIFLOWER AND CABBAGE.

Carrots. One row of carrots was planted on June 2nd, and gave the same general results. Some of the plots were tampered with so that weighings are incomplete. The N40 section appeared to contain sufficient Nitrogen in available form and the Normal plot was noticeably backward. Tables IV. and V. show the order in which plants stood in size and appearance at the beginning and end of the growing season.

Onions. Onion seed was sown on June 2nd, and growth was good on all but the Normal and N80 Nitrate plots. The Normal plot was very backward as seen in photographs taken July 19th. Sludge gave good growth both early and throughout the season.

Lettuce. The results are indefinite owing to the difficulty of preventing sparrows from eating off the tender leaves. Sludge gave good growth results as did the Tankage plot. The Check plot was average and the Normal plot again noticeably poor.

Tobacco. Tobacco is becoming more and more extensively grown in Canada, and as a crop depends largely for its luxuriance on the soil fertility and is not successful on poor soils. The commercial product should be sown as seed in March or April to give the slow growing seedlings time to develop. In the present instance the seed could not be sown until May 22nd, and planted out on July 15th in a weak and precarious condition. Growth was excellent on all the fertilized plots. By Sept. 9th the plants were 2 ft. high with leaves up to 30 inches in length. The demand for nitrogen was evident in that the Normal plot did not produce a marketable plant and the Check plot plants were smaller than any of the plants on nitrogenously fertilized plots. The N120 section gave best results, N80 next, and N40 last, as might be expected. The Cyanamide and Blood plots seemed to contain more plant food at this season and gave plants somewhat larger than those on the Sludge plots. Tables III. IV. and V. give the early growth, later appearance and average weight of plants.

Growth Acceleration. During the growing season it was thought advisable to test the effect of "sludge in the process of activation." Strips two feet wide on the check and normal plots, were treated with five pails of effluent every second day for two weeks. Within a week, the effect was distinctly noticeable on practically all the vegetables of each plot. Onions and tobacco showed the greatest stimulation and doubled in size during the two weeks. A luxuriant growth of tomatoes and cucumbers resulted from seeds in the sewage effluent. Other experiments were conducted to test the "dried sludge" for seeds. Small flats were filled with sterilized and unsterilized sludge, loam and sand. No growth occurred on the sterilized flats and no additional growth on the flats where sludge was mixed with loam or sand. These experiments showed that seeds were eliminated or killed in the drying and milling process.

General Remarks on Fertilizers. From the above results it is evident that "dried" or "activated" sludge is very valuable as a fertilizer and can compete with other commercial fertilizers on the market.

It accelerated the growth considerably on a very wide range of market garden vegetables and plants.

The application of Cyanamide at the time of sowing was detrimental to its best results, as might be surmised from a pamphlet issued by the Amercain Cyanamide Co. They advise its application from several days to several weeks before seed is sown, according to the nature of the seed. This was impossible in the present instance, owing to the lateness of the season when the plots were ready. Cyanamide gave good results in later growth and ultimate production. In the case of tomatoes its effect was very marked.

Sodium Nitrate and Ammonium Sulphate appeared to be similar in effect. They accelerated plant growth earlier in the season than Cyanamide and Blood but the Nitrogen was not as available as in Sludge or Tankage. The growth produced tended to even up with sludge later in the season and gave greater production than tankage.

Tankage gave early growth and maturity but a light crop production. It had the added advantage, as indicated above, of a phosphoric acid content.

Dried Blood like Cyanamide gave good results, especially in heavy production, but the Nitrogen was not very readily available. Blood is now used largely as a constituent of stock food and consequently is of less importance on the fertilizer market.

Sludge has at present a nitrogen content of 5% when activated and below 2% when not activated. There is reason to believe that this percentage can be increased by better activation processes. The moisture content is high, so that transportation is more costly than it will be when more complete drying methods are found. The transportation problem, however, is not a great one, as the fertilizer can be produced at all centres of population and long hauls will not be necessary.

(1) The Nitrogen in "Activated Sludge" was readily available for plant food and was in assimilable form.

(2) The Sludge was very beneficial when applied immediately prior to planting.

(3) Activated Sludge gave a rapid early growth which exceeded that of any other commercial fertilizer used.

(4) The maturity of the plant was hastened by sludge, so that its value was greater by the producing of an earlier marketable product.

Discussions and Suggestions. It is felt that earlier work on this subject has not been done with these points in mind. Bartow and Hatfield concluded that Sludge was valuable as a fertilizer, but their work was on plots 2 ft. by

3 in., so that field conditions could not be even approximated. The plots should be as large as possible and in long strips with check plots interspersed frequently, so that field heterogeneity may be observed and allowed for.

Nasmith and McKay experimented on the fertilizing value of activated sludge with plots 4 ft. by 10 ft. With a very limited number of plots and little variety in plants used, their results are restricted in value. They used 14½ tons per acre of air dried sludge. If the moisture content was as high as 75%, instead of 14%, the amount of Nitrogen applied on a 5% basis would be over 1000 lbs. of Nitrogen per acre. This is far more than is economic or practical. The application of a fertilizer must be in economic quantities, based on the needs of the plant and calculated on the Nitrogen content. They have failed to recognize this factor in determining the economic possibilities of sludge.

The work done on this problem leads to an agreement with the ideas expressed in a recent publication by the United States Department of Agriculture on the heterogeneity of field crops, soils which appeared uniform during preparation and cultivation gave wide variations in results. Few have sufficiently recognized, and none have adequately emphasized the importance of this factor. The result is that much work hitherto done has led to false conclusions. The irregularities may be greater than the variations caused by the fertilizer under observation. Personal judgment is inadequate in selecting soils and agronomic technique is essential. Future investigators should seek an exact measurement of heterogeneity based on observations of the following:

- (1) The variations in chemical composition of surface and substratum soil.
- (2) The infection of local areas by disease producing organisms.
- (3) The differences in requirement of food by plants.
- (4) The physical properties of the soil which vary locally in the size of soil particles, their compactness and resultant variation in aerobic condition and drainage.
- (5) Lack of uniformity in depth of planting.
- (6) Drainage at time of planting and during the growing season.

Soils varying in chemical and physical properties should be tried and these must be so separated that no interdrainage can take place. Concrete or steel tanks have been suggested in which definite and known proportions of soil and fertilizers could be mixed and the moisture content regulated. The amount of nitrogen available for the plant at all stages of growth should be known and the amount which is lost in drainage and putrefaction.

In connection with the commercial utilization of sludge the problem of rapid drying must be solved. The activated sludge for the above experiments was air dried on trays.

Sludge must be dried in large quantities and by a commercially cheap method. A lower moisture content would raise the relative percentage of nitrogen and make the fertilizer more valuable. Various commercial devices for drying should be experimented with.

Increasing the nitrogen content of sludge offers a wide field for investigation. The activated sludge supplies nitrifying bacteria to the sewage sludge. During the process of aeration these bacteria act on the available nitrogen and convert it into a stable condition in which it is readily available as plant food. It is estimated that 15.4% of the total available nitrogen present in sewage may be recovered in this way. Some preliminary work has been done on cultivating azotobacter on suitable media and adding these cultures to sludge during activation. Results are so far inconclusive, but offer large possibilities. Identification of bacterial forms, sterilization of sludge and inoculation with bacteria may increase the nitrogen content considerably.

The verification of results should always be made. The conclusions of a single season's experiments are not sufficient proof, but if substantiated throughout a series of seasons become valuable.

With these suggestions in view and a uniformity of reports kept in mind, future work will be of intense value in estimating the economic value of activated sludge as a fertilizer.

Co-operation in this work between the University and the Provincial Board of Health was arranged by Prof. R. B. Thompson, of the Department of Botany and F. A. Dallyn, of the Provincial Board of Health. To both of these men, as well as to Prof. H. B. Sifton and A. V. Delaporte, I am indebted for helpful advice.

LITERATURE CITED

1. The American Cyanamid Co., N.Y.—“Cyanamid.”
2. U. S. Department of Agriculture—Journal of Agriculture Research, Vol XIX., No. 1; “The Heterogeneity of Field Crops.”
3. Nasmith & McKay—“The Fertilizing Value of Activated Sludge.”

REPORT OF THE DIVISION OF CHILD WELFARE

1920

I beg to submit herewith a short summary of the activities of the Division during the year:

(1) EXHIBITS.—The Educational Campaign was continued throughout the year and the Child Welfare Exhibit was shown in connection with local celebrations, the Canadian National Exhibition and a number of Fall Fairs. The former plans were adhered to, and infants and children of pre-school age were given special attention in Child Welfare Conferences.

(2) THE CHILD WELFARE "SPECIAL."—A truck specially fitted for the conduct of Child Welfare Clinics was secured. It made its first appearance at the Canadian National Exhibition and it is hoped will accomplish much in the way of furthering the interests of Child Welfare in Ontario.

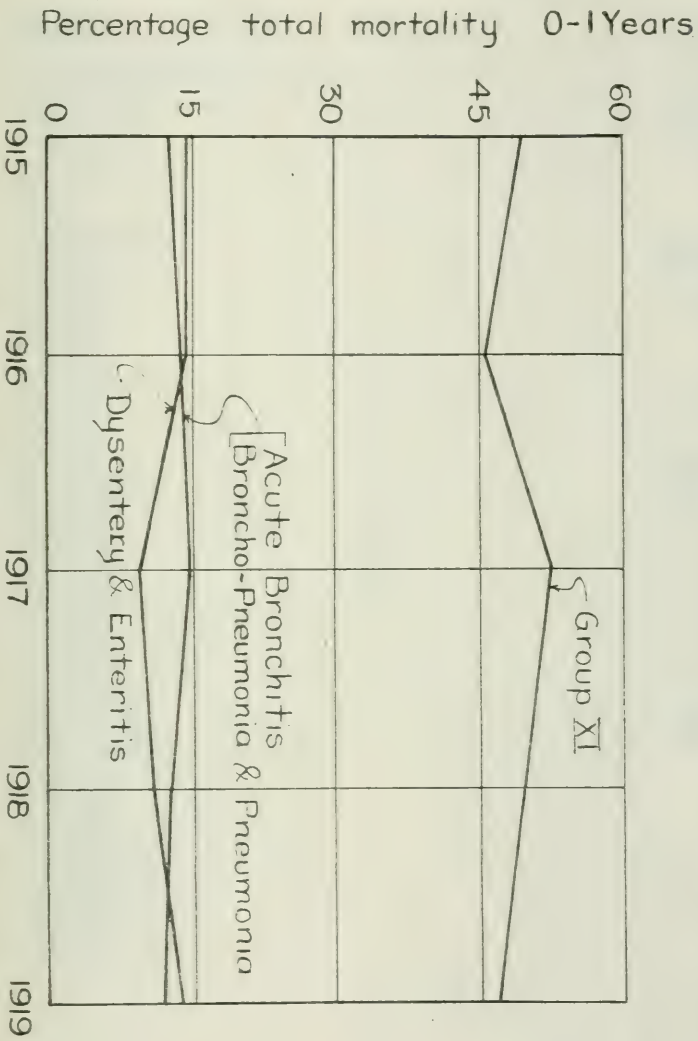
(3) CONVENTIONS.—Representatives from the Division were enabled this year to attend the following conventions: The National Conference of Social Work, National Organization of Public Health Nursing, Canadian Public Health Association and American Child Hygiene Association. In October, the Director attended the conference on Child Welfare called by the Federal Department of Health in Ottawa.

Following the action of the Legislature at the Session of 1920, it was made possible for the Division to undertake intensive work. An appropriation was passed whereby the Division was re-organized under the heading of Maternal and Child Welfare and Public Health Nursing. The first step was the appointment of eight Public Health Nurses, one to each of the Health Districts; which appointment was followed by the very generous offer of the Ontario Division of the Canadian Red Cross Society, to maintain and equip an additional eight nurses. A special course was arranged, and the sixteen nurses were sent out into the field in October.

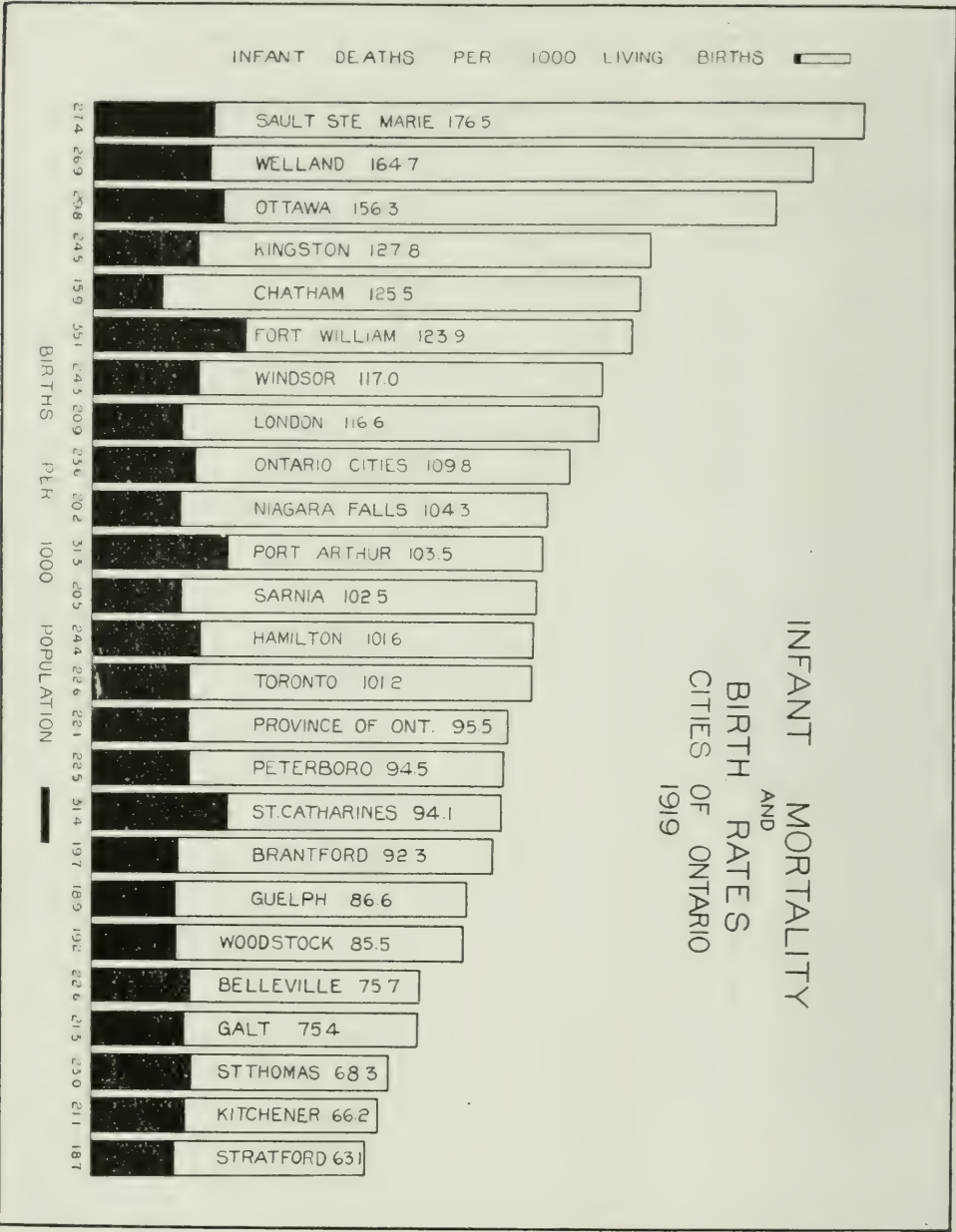
The plan was as follows: Following a conference with the District Officers of Health, the nurses went in pairs to the various districts, a particular centre being recommended by the District Officer of Health. The scope of the work in the field is generalized public health nursing, including Child Welfare, Tuberculosis Visiting and Emergency Bedside Care. We trust to be able to give a full account of their activities and resultant local appointments in the next Annual Report.

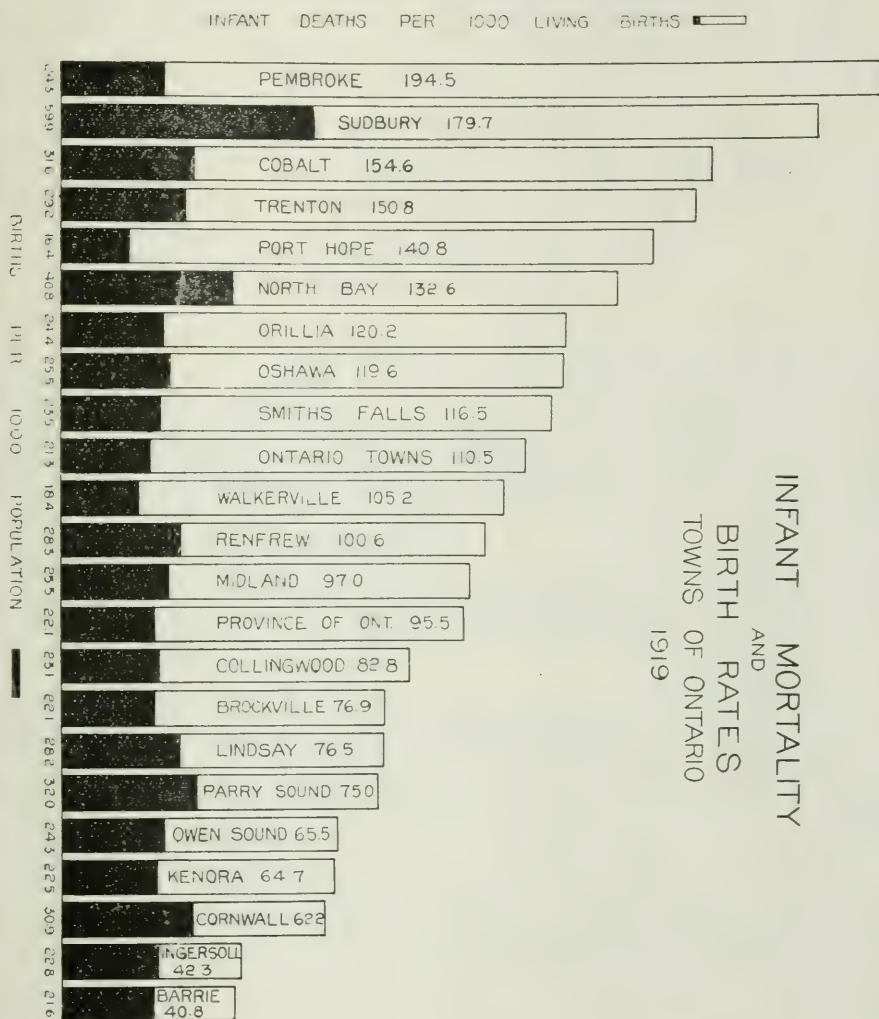
For some time a very great need had been felt for the services of a pediatrician in connection with the work of the Division. We are pleased to report that in June of this year, Dr. W. J. Bell was appointed full-time pediatrician.

ANALYSIS OF DEATHS UNDER ONE YEAR
PROVINCE OF ONTARIO 1915-19



GROUP XI INCLUDES DISEASES OF EARLY INFANCY.





THE DISTRICT OFFICERS OF HEALTH PROVINCE OF ONTARIO

DISTRICT No. 1

Comprising the Counties of Lambton, Essex, Kent, Elgin, Oxford and Middlesex.

T. J. McNally, M.D.

District Officer of Health, London, Ont.

I have the honour to report to The Ontario Provincial Board of Health the following work accomplished during the year 1920. During January and February I was in charge of District No. 2, at the same time having partial supervision of District No. 1, so that my time was largely occupied in attending to calls from Local Boards for assistance and advice regarding various unsanitary conditions and the suppression of communicable disease; however in these two months I made an inspection of twenty municipalities in District No. 2.

Since being appointed to this (No. 1) District, I have made an official review of Sanitary conditions in eighty-eight municipalities as well as making special visits to forty-one different municipalities at other times in an effort to control outbreaks of Smallpox, Scarlet Fever and Diphtheria or the abatement of nuisances caused by Canning Factories, Milk Condensers, Creameries and slaughter-houses.

In an endeavour to clean up the nuisances caused by the effluent from the several factories of The Dominion Cannery I have made an arrangement with Mr. Dallyn, the Provincial Sanitary Engineer, to meet the Directors of the Company and have some standard method of disposal adopted by all of their factories, and thus clean up the whole situation instead of taking up the local situation with each branch as this has in the past caused considerable annoying loss of time on our part and has not accomplished satisfactory results.

In reference to the creameries and other milk product factories I have endeavoured to get a general clean up of the situation by requesting the Chief Officer of Health, Dr. J. W. S. McCullough, to communicate directly with the different head officers and am hoping for some large measure of relief, as so far dealing with the individual local managers has not improved conditions satisfactorily.

MEAT AND MILK SUPPLIES

The slaughter houses in this District are not generally in a satisfactory condition but having made an inspection of most of them during the year, I notified those not complying with the regulations that by May 1st, 1921, they must have their places complying with the standard set by the Department and maintain them according to the regulations.

The milk supply in several of the urban municipalities has not been supervised by inspection under local By-Laws, but on our advice some of these By-Laws have been passed, and regular inspection adopted, so that some progress has been made during the year towards a purer milk supply.

RURAL SCHOOLS

The insanitary condition of conveniences at many of these schools is deplorable not only on account of the danger to the health of the children, but as utterly failing to impress upon their minds the elementary principles of sanitation so necessary to the avoidance of disease and the preservation of health.

I am pleased to note, however, that the action of The Provincial Board requiring the local Medical Officer as a part of his duty to inspect the schools and insist on conditions being sanitary has accomplished much good, not only in improving conditions but in directing special public attention to the necessity for improvement.

The drinking water has not heretofore been safeguarded, or in some instances supplied for the schools, as it should be.

COMMUNICABLE DISEASES

Smallpox.—The incidence of this disease is entirely too common, seeing we have in vaccination a certain preventative. Since being appointed a District Officer of Health eight years ago I have seen some hundreds of cases of this disease but in not a single instance was the person suffering fully vaccinated within five years, though in many instances members of the family were in daily contact with the patients and did not contract the disease, through having been protected by vaccination.

I was required during the year to visit twenty-two municipalities to assist the local authorities in stamping out the disease. The cases have been mild, which has added to our difficulty in controlling outbreaks, but I am pleased to report that in every instance the public has joined in the effort to prevent its spread, once recognized.

Scarlet Fever.—This disease has been comparatively rare in this district during the year and of mild type. This mildness was fortunate for the victims but added very materially to the vigilance required from the local officers which, I am pleased to note, was not lacking for, so far as I am aware, outbreaks were controlled before they assumed the proportions of a general epidemic in every case.

Tuberculosis.—It is ever with us, and I am of the opinion that during the past and present year its incidence has been more frequent than for some years back; this has doubtless been due to the strain and stress of The Great War. From observation I believe it is by far the most frequent cause of death, and the greatest source of loss of time and capital of any disease from which our people suffer.

During the four years of war it caused the loss of more lives in Canada than Canadians' lives were sacrificed on the battle fields of Europe. While I fully appreciate what Ontario has done and is doing towards controlling this scourge, yet I do not believe it is nearly as much as should be done considering the inroad the disease is making on the life, health and resources of our people. Why should we not have specialists and clinics for diagnosis and free consultation with our general practitioners if desired by them or their patients, especially in the rural or small urban centres?

We should have many more institutions for the care of incipient cases near their homes where they might be visited by friends, until at least the stage of quiescence is reached, with supervision thereafter by the specialists of the institution.

All available room in all our institutions is now filled so that it is difficult or impossible for a patient to obtain such care without a wait, that too frequently means failure or at least a prolonged period of treatment.

Diphtheria.—The incidence of this disease is not abating as we would like to see it, nor is the death rate lowering as it should, considering the efficacy of anti-toxin both for prevention and treatment and that your Board supply it free to all for these purposes.

To illustrate the efficiency of anti-toxin treatment and how death rate may be controlled by it I quote the following figures as given by Dr. Tillman of London. In the Children's Home here before the use of anti-toxin out of twenty-one patients only one survived, while ten years later in another outbreak with twenty-one cases and using anti-toxin, only one child died and twenty recovered.

Measles.—Outbreaks of this disease have been rather rare and of mild type; quarantine is generally being now observed though in a few instances neglected until checked up.

Whooping Cough.—Reports from those practitioners using the Board's Vaccine have been very favorable both as to prevention and treatment, so much so, that I would suggest that your Board obtain reports from them and bring the facts to the attention of the profession and the public generally.

Typhoid Fever.—I am pleased to report that the District has not suffered from any epidemic of Typhoid this year.

Owing to the fact that I was satisfied that the epidemic in Chatham in 1918 was due to water infection, I made a special investigation to determine, if possible, why it was apparently confined to certain portions of the city, and elicited the following facts which we were unable to unearth at the time.

During 1919 the reports on the water supply at the pumping station were uniformly satisfactory, but the reports taken by the M.O.H., Dr. McRitchie, from certain parts of the city were severely polluted while those taken from taps in other parts of the city, were quite satisfactory.

The City Engineer then set about finding an explanation for this difference and found that The Chatham, Wallaceburg and Lake Erie Electric Railway at the corner of Third and King Streets had a connection from the Thames River to their boiler and through the same pipes the city water mains were connected, so that city water might be used, in case anything interfered with their river connection.

The only safeguard against polluting the city mains was a gate valve. On questioning the man in the pump house the city engineer elicited the information that a short time previous to the epidemic in 1918 it was discovered that the water in their (the railway) taps was vile, smelling and tasting, and on investigation it was found that the gate valve was partly open at the time (June or July, 1918). It was in the locality of the main where this connection was made that the fever was most severe and radiated out along the connecting mains, so that I believe this to be the true explanation for the localized distribution of the cases in the city.

Moral.—Make sure that such connections are not permitted in future if any exist now of any of our towns or cities.

Morbidity and Death Reports.—While I am of the opinion that there is a slow improvement in these reports, there is no doubt in my mind that they are far from satisfactory nor do I believe they will be reliable until some radical change is made in the supervision of their collection; further I am of the opinion that the route of these reports should be changed so that they come first to the District Officer of Health, as too much time is lost between the occurrence of a case of communicable disease and the time it comes to the notice of the District Officer, to permit of his taking such action as might prevent an outbreak.

To accomplish both of the objects in view, it appears to me that a regulation should be made by the Provincial Board or other proper authority, requiring each clerk of a municipality to send in a report on each Thursday stating the number of new cases of each disease and deaths therefrom, or their absence from the municipality during the preceding week, (i.e., new cases).

This report should be sent to the office of the District Officer there recorded and then forwarded to the Provincial Office on Friday or Saturday. This would require a much-needed clerk in the District Office, who would not only do the above work, but would be able to check up the delinquent clerks under the supervision of the district officer, file papers, keep statistics of the district and relieve the district officer of the many minor details which make a serious inroad on his time.

This arrangement would bring the District Office into immediate contact with each case of communicable disease as soon as possible, and would enable him, with a clerk's assistance, to keep exact record of the number of cases at any one time in a municipality, which I confess I have never been able to do so far; he would thus be able to know at all times just where the danger point were, and be able to concentrate his energies there for the time being.

DISTRICT NO. 3

During the year 1920 your District Officer of Health was engaged in Epidemiological work along with other true public health work. We have had a number of cases of infectious disease, notably Smallpox. So long as we have an unvaccinated population we are bound to have recurring epidemics of this disease. The lower animals seem to be grateful if we do anything for them to save them from infection but man, alas, rebels when we try to enforce vaccination, and vaccination is the real preventative of Smallpox. I am trying to do educational work along public health lines, but it seems a slow process. I believe, though, that in the long run, education is as good if not better than legislation. The public is suffering from the faulty education of the past. I have found for instance that a great deal of my time is taken up in looking after nuisances; these are matters that are difficult for the local M.O.H.'s to handle, as it does not pay them to offend people who may be their patrons.

I submit that the abatement of nuisances should not be the function of the Board of Health, inasmuch as nuisances in the main do not produce disease. It is a police function if it is anything, and should not be saddled on the Board of Health any more than street cleaning or scavenging. It cannot, I think, be successfully shown that odours produce disease, so why waste the time of Health Officials in suppressing them, when that time could be more advantageously spent in true public health work, such as obtaining pure water and pure milk for the citizens, child welfare work, the suppression of communicable diseases, the fighting of tuberculosis and the promotion of industrial hygiene. These are true public health problems and I submit that these should occupy the time of Health Officials rather than bad odours, dead cats or dirty slaughter-houses.

There are a number of misconceptions that the public has, regarding public health that I have been trying whenever the opportunity arises, to combat. In the first place people believe that filth is the cause of disease. The belief that the germs of disease propagate in filth and even arise "de novo" has seriously retarded sanitary progress by turning the minds of the public

in the wrong direction. A great many people, and educated people, too, believe that filth is a real source of disease. Laws have been enacted providing for "the abatement of any nuisance, source of filth or cause of sickness." The garbage pail, decaying leaves and rubbish, factory odours, odorous slaughter-houses, a public dump or a dead cat are still in the minds of the public, a source of sickness and it is still believed that it is the first duty of the health officials to cause their abatement. With regard to this let me say that so far as we know, there is no such thing as spontaneous generation of disease germs in filth. The public may say, then if filth does not produce disease why do you preach cleanliness? The answer to that is, that while disease germs are not produced and do not propagate in filth, still, disease germs are carried in filth. So that it follows that dirt or filth, may be concerned in the spread of infection. The same habits among people which cause them to become dirty and remain dirty, are the same habits which tend to spread infection from person to person.

Another misconception that the public has, is an unreasoning and unreasonable fear of tuberculosis. They are here suffering from over education. We recognize that tuberculosis is a disease which is rarely contracted by adults, and that even in the cases where the disease manifests itself in adult life, we now believe that the infection gained entrance in childhood and remained dormant for years, until some illness or extra strain so lowered resistance that the germs were able to become active. Also we must remember that if the infection in childhood is not too overwhelming, the tendency is for the system to build up an immunity against the disease, so that the child infected in early life who has overcome that infection is less apt to be infected in adult life on account of this immunity having been established. It follows then, that we can assure the public that there is very little danger of infection in adult life and then only from "mass infection."

Another misconception is that perfect health or high health if we may so deem it, protects the individual against infection. This would mean if true that only the weaklings would be affected by disease, and if only the weaklings were affected by disease that only the weaklings would die, and hence in a short time we should be a nation of physically perfect people. Indeed this should be the case now if this law has been operating down through the centuries. We know how far short of the fact this is, when we remember that when the young men, in the prime of life from 18 to 45, were examined during the war, about 30 per cent. of them were found unfit for military service. Again during the recent epidemic of Influenza, it was not the weaklings who were most commonly affected, but those in the prime of life from 20 to 35 years of age who were quite commonly affected, and alas many of whom died. It may be taken for granted, I think, that if the dose of the infection is large enough and repeated often enough, anyone, no matter how physically perfect, may come down with disease unless they have an immunity already built up by having had one attack or being immune by heredity.

One other misconception I have tried to combat is that disease is airborne. The belief still exists that in epidemics, like Influenza, where wholesale infection appears to take place, the germs are wafted by the winds and carried from one region to another. We do not say absolutely that infection never takes place through the air. It is possible that dust particles may contain live germs of disease, but infection by this means is very rare. Epidemics travel by railroad or steam-boat or in other words the way people travel, and the infection is carried by the individual and transmitted by contact.

I have tried in this manner to educate the people away from the unimportant things in public health work and from these, lead them to see that there are vastly important things that must not be overlooked; that the duty of the

medical Officer of Health and Board of Health can be better employed in seeing for instance that the people have a pure water supply, a safe milk supply, that the health of the children should be looked after, that they should have prenatal care, care also during their school life and care also in industrial life after they leave school, that it is important to look after communicable diseases, that people should be taught the value of vaccination as a preventative of Smallpox and that tuberculosis and venereal diseases are preventable and hence should be prevented. That is rather a large order and requires money to be carried out successfully, and we won't get very far until the public is convinced that money spent in public health measures is an investment and not a liability.

During the summer of 1920 I visited practically every medical Officer of Health and every municipality in my district. This I was able to do on account of having the use of a motor car. Some of the municipalities were visited several times. Increased interest on the part of the Medical Officers of Health in the work was noticed generally. In addition I attended public meetings whenever opportunity presented itself.

Communicable diseases are still a difficult problem. A large number of cases of Smallpox occurred during the year—this disease cannot be stamped out until people all get vaccinated. Typhoid fever seems to be on the wane—we had two small epidemics during 1920, one at Jordan and one at Crystal Beach.

The municipality of Crystal Beach has by special act of Parliament become incorporated and I am expecting that the new council will attack the health problems in a more systematic way and that we may expect better results.

During the year 1920 District Public Health Nurses were appointed by the Department. They are being assisted by nurses furnished by the Red Cross Society. In my district they began their work at Dundas, and went from there to Newmarket. They are being well received by the people and are having very gratifying success.

D. A. McCLENAHAN, M.D., D.P.H.,
District Officer of Health.

DISTRICT NO. 4.

Comprising the Counties of Prince Edward, Hastings, Northumberland and Durham, Peterborough, Haliburton, Ontario, Victoria, Simcoe and Muskoka.

GEORGE CLINTON, M.D.
District Officer of Health, Belleville.

I have the honour to submit for your consideration a summary of my work for 1920.

COMMUNICABLE DISEASES

From January to November a large portion of my time was taken up investigating Smallpox conditions, and assisting the Local M.O.H.

This disease has been very general through nearly the whole district, in some places of a mild type, in others, severe. There were no deaths. Vaccination was strongly advised and fairly well carried out.

The following places were visited by special request on account of Smallpox outbreaks:—

Orillia Asylum.—Sixty cases, all males. Some severe, general vaccination prevented it spreading to other parts of the buildings. During that visit I met the Local Board of Health and the School Board of Orillia, and advised a general vaccination of all school children, which was promptly carried out.

Oshawa and Whitby Twp.—Twelve cases.

Brighton Twp.—Nine families, all had been quarantined.

Enniskillen.—Two cases.

Campbellford.—Three cases.

Fenelon Falls—Four cases, all in one family.

Peterborough—Twin babies, four days old, in the general hospital. The mother had smallpox, a typical case, three months before confinement. Mother and babies were immediately removed to Smallpox Hospital.

All patients in the Obstetrical Ward were vaccinated and quarantined for fourteen days. No other cases developed.

Bowmanville—One severe case.

Havelock—Two well marked cases.

Also Tweed, Marlbank, Eldorado, Penetanguishene, Deloro and Hallowal Twp.

In July, I was called to Point Ann—seven families. The Board of Health took possession of a sleeping cabin belonging to the Canada Cement Company, with accommodation for thirty patients, a nurse and a cook. General vaccination in the village. There were about seventy cases before the epidemic was apparently under control. Again in August another outbreak occurred, eighteen cases. The Isolation Hospital was still used. No further outbreaks were reported until November, when a case came from Ottawa region. Six cases and two houses were quarantined. The Cement Company strongly protested against the use of this building for isolation purposes, but were notified that unless they assisted the Local Board of Health, their whole plant and the village would be quarantined. This ended the difficulty.

In November I was called to Trenton for a case which came by railroad from a northern hunting camp. After much explanation with the railway officials the caboose was equipped, placed on a remote siding, and the necessary supplies furnished. The officials objected to this arrangement, until informed they would be responsible for all expenses in isolating and caring for the patient if removed from their property into the town. My advice was followed and no other cases developed.

At Belleville General Hospital—two cases in the public ward, and one nurse. Met the Local Board of Health and took possession of a building, procured a nurse and an attendant, and moved the patients the same night. Later—two other nurses and a private patient, an old lady eighty-nine years of age, were moved to the Isolation Hospital. This building has been fitted up, and with modern plumbing and heating installed, and has been in use most of the time ever since.

In October, at Oshawa, an epidemic of diphtheria occurred. There were thirty-five cases active and twenty-four carriers, which were all placed in quarantine. There were two deaths. I called a meeting of the School Board and the Board of Health and after much discussion they consented to issue an order that all school children should have an immunizing dose of Antitoxin. This epidemic was soon under control. We have been fairly free from the other infectious diseases. Several cases of Scarlet Fever, Diphtheria, Measles, etc., have been reported, but not in epidemic form.

I find that the public and the different societies are realizing more and more the importance of Public Health work, and co-operate much more readily with the Health authorities.

The Councils are the most difficult to convince of the necessity of granting better financial aid.

In the different places where a school nurse has been employed, without exception they have demonstrated their worth, and given satisfaction.

The Child Welfare Branch is fast becoming one of the great factors in public health work.

The most important period in the life of a child, for its future health, is from its birth until it reaches the school age. Its food, general care, cleanliness, and proper clothing are all very important. I have pointed out at different meetings, the value and benefit of a child welfare nurse to educate the mothers in the care of their children during this period. The Child Welfare nurses in my district have done good work, and are bringing about good results.

In the smaller towns the public are not yet educated for a V. D. clinic, and I find it hard to induce them to act. I would suggest that it might be well to combine a Baby Clinic, Child Welfare, Laboratory and Venereal Disease Clinic. I am afraid it will be difficult to establish V. D. Clinics solely.

No new municipal water or sewage disposal plants have been installed during 1920, except the sewage disposal at Orillia Asylum.

✱ In my whole district I find the milk and meat supplies and the general sanitary conditions much improved.

✱ With the New Year I began my usual tour. A sanitary inspection was made, and detailed reports were sent to the Provincial Board of Health of the following public institutions:—

HOSPITALS.

Belleville.—Two. (One Isolation).

Picton.—One new—twenty-five beds. The old hospital has been taken for a Nurses' Home.

Peterborough.—Three. (One Isolation).

Cobourg.—One.

Port Hope.—One.

Bowmanville.—One.

Oshawa.—One.

Lindsay.—Two. (One Isolation).

Barrie.—One.

Midland.—One.

Penetanguishene.—One.

Collingwood.—Two. (One Isolation).

Gravenhurst.—Three Sanatoriums.

HOUSES OF REFUGE.

Picton—Prince Edward County.

Belleville—One for Hastings County. One for city.

Lakefield—One for Peterborough County.

Peterborough City.—Two, House of Providence and Protestant Home.

Cobourg.—One for Northumberland and Durham County.

Whitby—One for Ontario County.

Lindsay—One for Victoria County.

Beeton—One for Simcoe County.

GAOLS.

Picton, Belleville, Peterborough, Lindsay, Cobourg, Whitby, Barrie, Bracebridge.

These are nearly all old buildings of stone—ventilated by windows—with the exception of Cobourg, which is a model.

ASYLUMS.

Whitby, Cobourg, Orillia and Penetanguishene.

CHILDREN'S SHELTER.

Picton (True Blue Orphanage), Belleville, Orillia, Peterborough, Barrie, Lindsay, Collingwood, Cobourg.

These places are doing a noble work in caring for unfortunate children and placing them in good homes for adoption.

When meeting the different societies, councils, School Boards and Boards of Health, I have pointed out to them and explained the work that is being done, and the aid given by the Provincial Board of Health, in furnishing vaccines, serums and anti-toxins to the public, as well as the free testing of milk and water, also blood for Widal's, Wassermans, etc.

At the meetings of the different medical associations, I have asked the co-operation of the medical men in promptly reporting communicable diseases, especially venereal diseases.

SUMMER RESORTS.

All summer resorts have been carefully inspected during their activities in July and August, and the conditions found, generally speaking, have been satisfactory. Two places, which were condemned the previous year, made the necessary sanitary improvements. Some minor details in other places as to the disposal of garbage were readily corrected. All resorts on Kawartha Lakes, Lakes Rousseau, Joseph, Muskoka, Lake of Bays, Fairy Lake, Peninsula, Mary and Sparrow Lakes, Honey Harbor and Georgian Bay were visited.

DISTRICT NO. 5

Dr. J. W. S. McCullough, Chief Officer of Health, Toronto.

Dear Sir,—I have the honour to submit herewith my annual report for the year 1920 of my work in District No. 5, comprising Counties of Lennox and Addington, Frontenac, Leeds and Grenville, Dundas, Stormont and Glengarry, Prescott and Russell, Carleton, Lanark, Renfrew and the City of Kingston.

This district had a population by the last census of 326,958 people.

CHANGE OF OFFICE.

In September the Head Office for the District was moved from the Town of Cornwall to Ottawa. The object of this move was to have the office more centrally located, and, owing to the better railway and highway communication, more accessible.

The Department has also placed at the service of the District Officer, a Ford coupe, to aid him in performing his work. This is found to be a very great convenience and enables a larger amount of work to be performed at a much less expense than by depending, as formerly, almost entirely on train service and the hiring of vehicles.

During the year the district work has also been enlarged and greatly increased in efficiency by the appointment of District Health Nurses for the Province, two being assigned to this district.

The public health, besides the routine work of a district officer, has been promoted during the year by a series of public lectures and the distribution of pamphlets and other literature dealing with health problems. The head office of this district has been availed of as a source of information and direction by the different officers of health, Boards of Health, municipal bodies and individuals to a much greater extent than in previous years, over fifteen hundred communications having been sent out from this office.

During the period of the war many communicable diseases, notably Smallpox, Cerebro Spinal Meningitis, were said to have spread among the people owing to the mobilization of the troops. During this year normal conditions in this regard have again been established.

Scarlet Fever, Measles, Whooping Cough, in fact all the usual communicable diseases, excepting Smallpox, have been comparatively rare as epidemics in this district during the year 1920. The latter has been very wide-spread and, being of a very mild character, difficult to control. A special paragraph in regard to this disease is added to this report.

PUBLIC INSTITUTIONS

The following public institutions have been visited during the year and a report on their sanitary condition sent to the head office.

Brockville Asylum and Rockwood Asylum, General and Hotel Dieu Hospitals, Kingston, also the two orphanages, House of Refuge and Jail there, St. Vincent De Paul and General Hospitals, Children's Shelter, Old Ladies' Home, Jail of Brockville. General and Hotel Dieu Hospitals, House of Refuge, City Jail, Nazareth Orphanage, Cornwall. Jail and County House of Refuge, L'Orignal. General and Public Hospital, Smith's Falls. House of Refuge, Athens, Jail, Napanee. Public Hospital and Children's Shelter, Renfrew, V.O.N. Hospital, Almonte. Public Hospital and Cottage Hospital, Pembroke. House of Refuge, Perth.

SUMMER RESORTS

This district abounds in many beautiful and well patronized summer resorts, principally on the Banks on the Islands in the River St. Lawrence, the Rideau Chain of Lakes, the Charlton Lakes and along the Ottawa River. These resorts have had personal inspection both by the District Officer and the various local health officers in the different municipalities in which they are situated.

Among the more notable conditions, other than routine inspections and outbreaks of communicable diseases, requiring attention and necessitating one or more visits, were:—

Valiquette Piggery, Gloucester Township. Water and Sewerage installation, Westboro. Condensed Milk Factory drainage nuisance, Chesterville. Municipal Sewers, Winchester. The T. P. Phalen Steamship nuisance, Iroquois. Unsanitary Customs Office and Barber Shop and drainage difficulty, Morrisburg. Investigation re proposed dismissal of medical officer of health, Portland Township. Prosecution of slaughter-houses keepers, Kingston. Establishment of cemetery, Lanark. Installation of chlorination plant in connection with water supply, Smith's Falls. Sewer connection with butter factory, Perth. Unsanitary condition Gill & Fortune's lumber camp, Kaladar. Drainage difficulty, Arnprior. Amendment to Schedule "B" of the Health Act, Camden. Dispute regarding the office of Health Officer, Cardinal. Water supply contamination, Prescott. Septic tank nuisance, Elgin. Water supply and drainage, Plantagenet. Dispute re M.O.H. East Hawkesbury. Unsanitary dump, Clarence. Sewerage installation, Rockland. Dismissal of Health Officer, Ross Township. Water chlorination, Child's Welfare exhibit, Cornwall. Unsanitary dwelling, Farran's Point. Unsanitary toilets and inadequacy of help at R. R. Station, Finch. Installation of V. D. Clinics at Kingston, Cornwall, Smith's Falls, Brockville and Pembroke.

SMALLPOX

During the year 1920 there were four hundred and five cases noted in this district, not including the City of Ottawa. There were, no doubt, a large number of cases which were not reported, in a few cases by the physicians in attendance, but mostly by the householders. The epidemic was generally of an exceedingly mild character, although occasionally a very severe case developed and there were two deaths from the disease. The great majority of the Health Officers and Boards of Health acted with commendable promptness in stamping out outbreaks. In over fifty per cent. of the cases the disease was not allowed to spread beyond the first noted cases and in no municipality did it get beyond control. Almost half of the cases were reported from the Township of Cumberland, where, the epidemic being exceedingly mild, the householder had not brought the disease to the attention either of the physicians or the Health Officer. The procedure followed, with a few exceptions, was: Rigid quarantine and appointment of sanitary police both by day and night, vaccination of all contacts, vaccination of all children attending the schools, free to the pupils and also to all other children and adults who presented themselves on the days appointed by the Board of Health. This procedure resulted in a large percentage of the young children and unvaccinated adults being vaccinated as well as the school children. The vaccination order of the Board as regards school children was obeyed to the extent that an average of over 90 per cent. of the school children in attendance were successfully vaccinated. Smith's Falls with 99 per cent. and Rockland with 100 per cent. leading.

I might note that many school boards in recent years, Cornwall Public School being a notable case, have required successful vaccination of the children before entering on their school studies. I am encouraging other school boards to follow the example of the Cornwall public school and am convinced that until some such procedure is followed this district will be unable to view without concern the outbreaks of Smallpox in the province.

A circular letter was sent to all Medical Officers of Health, in whose municipalities Smallpox had occurred during the year, asking as to when the patients were last successfully vaccinated. In none of the four hundred and five cases were any of the sufferers vaccinated within seven years, and only four or five cases had ever been vaccinated previously and most of these in infancy. A question was also asked in the letter as to marked instances where vaccination had acted as a preventative. Mostly every Health Officer gave many incidents of striking results achieved by the use of vaccination as a preventative. A Smith's Falls case, reported by Dr. Easton, where a severe case broke out in a family of eleven living in a small house where isolation of the patient was impossible. No Isolation Hospital being available, dependence was placed on the vaccination of the rest of the family. Vaccination was successful in every case and, although the patient mixed freely with the rest of the family, no new case developed.

A case reported by Dr. Parkhill where at a country dance a man, just recently from the shanties affected with a mild form of the disease, had joined in the festivities. Only one person at the dance was unvaccinated and that one contracted the disease.

While the great majority of Health Officers handled their outbreaks with great success, I think particular mention should be made in this regard of Dr. Easton of Smith's Falls, Dr. McCann of Renfrew, Dr. McIntosh of Carleton Place, Dr. Powers of Rockland and Dr. McPherson of Prescott.

PUBLIC HEALTH NURSES.

A new departure was made by the Ontario Department of Health during 1920 by the establishment of a maternal and child welfare department. In connection with this department eight specially trained nurses were engaged to do public health work in the Province. The Red Cross volunteered to place eight nurses also specially trained under the Provincial Board, to co-operate with the provincial nurses in their campaign in behalf of public health. A Provincial nurse and a Red Cross nurse was assigned to each district. No hard and fast plan of campaign was decided upon as to the manner in which they would perform their work, but it was tentatively understood that the nurses would give three months' demonstration in each locality with the hope that after they had demonstrated to the people the benefits of public health nursing, the municipality would engage a nurse for public health work on their own behalf. The nurses are fully equipped with the necessary outfit to give demonstrations in public health work and the Government has also supplied them with an automobile to enable them to more effectively cover the locality selected.

Miss Gipson and Miss Halley began their public health demonstrations in Rockland in October and continued until January. They had remarkably good success in their campaign in educating the public generally as to the needs of public health work in the town. This was perhaps best shown in the breaking down of many prejudices so frequently found among our people. As an example, while previously vaccination was almost unknown in this town among the school children, co-incident with their coming there, 100 per cent.

of the children in the schools submitted to vaccination with little or no objection on the part of parents. While the chief credit of this is due to Dr. Powers, M.O.H., the Provincial Health Nurses were also an important factor. I am very hopeful that very satisfactory results will follow on the work of the nurses in this town. It is the intention that in the summer season the nurses will work in the rural districts, choosing some village as a centre and working in the surrounding country to such an extent as they can cover within the allotted time.

SCHOOL INSPECTION.

By a new regulation of the Provincial Board, the M.O.H. is required to make an annual inspection of all schools within his municipality. It is true that, under the Department of Education, the Public School Inspectors are supposed to make a sanitary inspection of all schools in their inspectorate. I have no doubt that the inspectors in the past have made reports regarding unsanitary conditions in the different schools, but it has been my experience that after those instructions and reports have been sent to the trustees, they have been quite generally neglected. Inspection of pupils, as generally understood, is not by the Ontario law under the supervision of the Boards of Health but under the School Boards. Personally, I do not consider this the proper arrangement. I think that all matters pertaining to the health of the municipality, including the inspection of school children, should be under the local Boards of Health. The sanitary inspection made by the Medical Health Officers is already bearing good fruit in an improved supply of drinking water for the children, more sanitary toilets, better lighting and ventilation and better facilities in the wash rooms. This work of the Health Officers is only in its inception and should become more efficient as the Health Officers learn more clearly the duties expected of them in this regard.

P. J. Moloney, M.D., C.M., *D.O.H.*

DISTRICT NO. 6

Comprising the Districts of Nipissing, Parry Sound, Timiskaming and Sudbury.

I have the honor to submit herewith the eighth annual report of District No. 6.

Travelling expenses continued to rise throughout the year so that although the distance travelled is considerably less than last year the cost is almost as great.

1919—Distance travelled 26,185 miles. Expense \$1,253.97.

1920—Distance travelled 21,794 miles. Expense \$1,202.14.

The staff in this district has been augmented by the addition of two nurses, Miss Linton and Miss Micklejohn. This has permitted the carrying forward of new lines of endeavour, especially the organization of municipalities for the application of the principles of hygiene to the child. The statistics which will be obtained from the different municipalities should be found of great value to the Provincial Board. The data to be collected by the district nurses should be specified by the Department and so co-related as to be of the greatest service in arriving at conclusions. The efforts of the nurses have

been crowned with success in Timmins where their work was first begun in Oct. 20th, 1920. The town obtained the services of Miss Lowe, who will carry on the work of community nursing in this place, as well as Separate and Public School Inspection. We anticipate a reduction of communicable diseases and the infant mortality rates. There will also be a diminution in the prevalence of parasitic infections of school children. Our district nurses have recently left Timmins for the Township of Tisdale, where they are now employed and where we are hoping they will be able to add other laurels to their credit.

The proposition of a new laboratory at North Bay has finally been launched. The contract has been signed and the building is about ready for occupation. We are anticipating that such a laboratory will have all the work it can do, with a corresponding benefit to Northern Ontario. Indeed the time factor between the obtaining of specimens and the securing of results will be so reduced as to eliminate all outside bacteriologists, for work within District No. 6. A supply of vaccines, anti-toxins and other laboratory products will always be on hand. This will make it possible to place these products in the hands of any physician in the District within eighteen hours. Service is the motto of the Provincial Board and few of its efforts have been fraught with greater possibilities to this section of the Province. The expressions of appreciation which have so frequently been received by your officials, indicate that the public conscience is not impervious to the benefits which a well-equipped laboratory offers.

The appointment of three additional sanitary inspectors in the persons of Mr. D. McKee, Mr. John Richardson and Mr. W. C. Miller has made it possible, for the first time, to give every camp in unorganized Northern Ontario adequate supervision. While some minor changes have been required in our camp regulations, their chief weakness has been in their want of supervision. I am satisfied that the increased attention will cure the great majority of the difficulties without any changes in the regulations. It will be unfortunate if the hands of these inspectors should be tied by arbitrary standards which will prevent them, after examination, from exercising their judgment. Such arbitrary requirements will then be found disastrous, and more binding on the Department than on the Companies; without in many cases, offering a more sanitary camp than has already been supplied. Many concerns have developed a style which meet their own peculiar needs and which embody the principles of hygiene to a degree not excelled by the proposed standards. Surely it is uncalled for, to force specifications upon these firms which compels them to scrap their systems and replace them with other methods which are no better. It would be sound principle to let the proposed standards stand in abeyance until the results of one year's efficient supervision has been obtained.

I cannot urge too strongly upon the Department the necessity of *limiting the jurisdiction of the Inspectors to the Health Districts* and placing them under the District Officers. This will tend toward efficiency and place the control on a much higher scientific basis. It will also make for unity and co-operation within the Department. There is plenty of evidence that the present system is far from satisfactory, hindering co-operation, fostering suspicion and distrust, and creating antagonism. It has always been found that several sets of officials, having similar jurisdiction, cannot work harmoniously together if they operate as separate organizations. This essential principle has been recognized by the Division of Child Welfare; since the nurses act under the district officers. It is to be hoped that the department will not continue the present system which makes for friction and inefficiency.

COMMUNICABLE DISEASES.

This has been a year of large epidemics and although the death rate has been small, the total number of deaths has been large. There has been, beside this, a serious interference with both home economy and that of the schools. The prevalence of Communicable Diseases has revealed to us several important weaknesses in our present system. It indicates that certain diseases which are required to be reported are in many notable instances not returned at all; while other municipalities are making returns for but a small proportion of the cases. Sudbury has made no attempt to report cases of typhoid, measles, whooping cough, influenza, influenzal pneumonia and acute primary pneumonia. Deaths only from these diseases are returned. In fact they have limited their efforts at notification, to Smallpox, Diphtheria and Scarlet Fever.

North Bay has had extensive epidemics during the year of the following diseases:—Scarlet Fever, Diphtheria, Smallpox, Measles and Mumps. Although mumps are not required to be returned this is no reason that the others should have such scant attention, for only a small proportion has been reported. Below is a list of the number of each disease returned and also a list of the number of cases reported.

	North Bay	
	Cases Returned	Cases Reported
Scarlet Fever	16	24
Smallpox.....	16	40
Measles	21	290
Diphtheria...	4	44

Haileybury has had another serious outbreak of typhoid with probably fifty cases and ten deaths. Yet only twelve cases were reported and no deaths. The Township of Bonfield has had an extensive outbreak of diphtheria but only a few were reported; in fact the most of them had no physician as the disease was unusually mild. There were, however, ten or fifteen deaths. The same conditions in regard to diphtheria existed in Sturgeon Falls with but few returns and a large number of deaths proportionately.

This district was visited with another wave of Influenza this year which left its trail of dead and maimed in its wake.

Below is a comparative table of cases of communicable diseases for this year and last year:—

	1920		1919	
	Cases	Deaths	Cases	Deaths
Smallpox.....	297	0	142	0
Scarlet Fever.....	129	2	75	2
Diphtheria.....	136	15	62	5
Measles.....	181	8	173	12
Whooping Cough.....	108	2	85	0
Typhoid.....	91	13	53	4
Tuberculosis.....	22	20	1	3
Infantile Paralysis.....	0	0	1	0
Cerebro Spinal Meningitis.....	5	5	6	4
Influenza.....	875	30	4	3
Influenzal Pneumonia.....	35	42		

	1920		1919	
	Cases	Deaths	Cases	Deaths
Primary Pneumonia	15	27		
Trench Fever.....	0	0		
Typhus	0	0		
Dysentery	48	6		

Smallpox—Smallpox was reported from 25 or 26 municipalities within this district during the year. The disease continued in its mild form which prevented the reporting of many cases especially when this gave promise of avoiding quarantine. The chief epidemics were in Sturgeon Falls, North Bay, Sudbury, Mattawa and the Townships of Delamere, Bigwood, Maitland and Cosby. In Sturgeon Falls your officials went to the assistance of the local authorities; a public meeting was held; and the residents informed of their responsibilities as citizens, in regard to the reporting of communicable diseases. They were informed that it was the intention to make a house to house canvass and that while we were anxious to let bygones be bygones, we would have to hold them responsible for any cases of smallpox which were found in these homes, which they had not reported. Smallpox was reported from about thirty homes within the next two or three days; and the town was free of the disease within four weeks.

Scarlet Fever—This disease was reported from twelve municipalities within this District. The chief epidemics were in North Bay, Sudbury and Copper Cliff. The mortality was strikingly low and had a tendency to adopt the form which has been prevalent in Fort William since 1917. This may, however, not be an unmixed evil, for although the disease may be almost impossible to control by present methods, we will obtain our immunity with a minimum death rate. The fact that the disease has been prevalent in Copper Cliff during the whole year would suggest that it is so mild that it is frequently missed.

Diphtheria—Diphtheria was reported from sixteen municipalities, with the chief epidemics in Sturgeon Falls, Sudbury, North Bay, Township of Ferris and the Township of Bonfield. The disease was of very mild type, running through family after family with little disturbance more than a sore throat which lasted for a day or two. The nature of the illness was usually not recognized; and as a rule the child promptly recovered. In a few instances in which there was little or no reaction of the body against the organism, the child, after five or six days, began to go down hill. Unfortunately the seriousness of the infection was usually not recognized until the patient was past help, and when the physician was called the child was nearing the end. I accidentally came across such a patient in the Township of Bonfield during my investigation of the outbreak in that municipality. The prompt administration of 10,000 units of anti-toxin threw the balance on the right side; and the life of the young woman, whose condition had caused no anxiety to the family, was undoubtedly saved.

Measles and Whooping Cough—These two diseases may be considered together since a pneumonia complication is the usual cause of death in each case. One must keep in mind that many more die from measles than from whooping cough; and that while the second year holds the highest mortality for measles, the first is the most dangerous in whooping cough. In measles, following this in the order of severity, are the third and first years respectively, after which there is a rapid and steady decline to the fifth year after which there are no more than five per cent. of the total deaths.

A very small proportion of the total number of cases of measles is being reported. For example, there were at least 290 cases in North Bay, which is more than was reported from the whole district. Sudbury reported four deaths from this disease, but no attempt was made to give the number of cases.

Measles were reported by nineteen secretaries of Local Boards. The chief outbreaks were in North Bay, Copper Cliff, Sundridge, Iroquois Falls, Latchford, South Porcupine and the Townships of Ferris and North Himsworth.

In Smooth Rock Falls there was an outbreak of whooping cough of some proportions but no attempt was made to give the number of cases. The disease was reported from six municipalities, the chief being Smooth Rock Falls and Sundridge.

Typhoid—Typhoid made its appearance in eighteen municipalities. The most serious occurrences were in Haileybury, Sudbury, Sundridge, Foleyet and Smooth Rock Falls. The reappearance of old offenders such as Haileybury, Sudbury and Smooth Rock Falls is to be noted. It must also be observed that all treat their water supply by chlorination while Haileybury filters as well. One must conclude that there is some incompetency in the operation of the plants. I cannot urge too strongly that Haileybury discard their present chloride of lime system and install a more up-to-date plant if they would eliminate typhoid. The number of cases in town was greatly in excess of the number returned. In Sudbury the cause of the epidemic does not seem so self-evident and further observation will be required to locate the cause. The difficulties at Foleyet seem to be in the pollution of wells and in fly infection. The correction of these things brought the outbreak to an end. In Sundridge contact has been a large factor in the spread of the disease. There have been several suspected carriers under observation. Flies and well pollution have also been factors. The Provincial Board lent an Inspector, Mr. D. McKee, to the municipality for a week with the result that the privies were put in first class condition. Smooth Rock Falls is used as a dumping ground for the contagious diseases in the camps of the company. The use of condemned water supplies is the chief factor, although some of their cases were due to a milk infection.

Tuberculosis—For the first time in several years there were more cases of tuberculosis reported than deaths from that cause. Yet it is quite evident that the returns are very incomplete. It is my intention during the coming year to try and check up the laboratory examinations with the cases reported. In this way it is hoped to bring home his neglect to the physician and stimulate the reporting of tuberculosis. It may be interesting to state that thirty-nine positive examinations were made by the Provincial Laboratory this year, of which twenty-two only were reported.

Dysentery—The epidemic of this disease which occurred in Iroquois Falls last summer is worthy of some attention. There were forty-eight cases and six deaths. A concerted effort will be made to prevent a recurrence next season.

WATER SUPPLIES

During the past year the municipalities have generally decided to curtail expenditure on capital account. Almost nothing has been done to extend water supplies.

SEWERS AND DRAINS

Timmins has about completed its new sewer system, but the town has not been allowed to use them since the disposal plant has not been completed. The town expects to finish this and make wholesale connections during the coming summer.

Conditions at Matheson are still hanging fire and although the Department has tried to suggest measures to help them out of their difficulties, at a minimum cost, no action has yet been taken toward a solution. Apparently the town is entirely unable to meet its obligations.

At Sturgeon Falls a new trunk sewer has been laid which will give house services to a large proportion of the town not yet connected. It is to be hoped that this will be followed by by-laws enforcing connection where possible; as the town is suffering from the unsanitary condition of its privies and the Treasurer needs the extra income which such extra water services will bring. The local Board of Health should grapple with the problem of reducing the number of privies.

PRIVIES

Reference has already been made under the heading of typhoid, to the efforts in the village of Sundridge to standardize the privy.

A new departure has been inaugurated in the camps of the Abitibi Power and Paper Co. A contract has been let to a capable man who sees that camp privies are regularly cleansed and disinfected. I am not able as yet to pass an opinion on this system, as I have not been able to get a report from Dr. Menzies on the locations used for the deposit of the collections.

It is necessary to point out again this year that even where night soil collection has been efficiently carried out, there has been a tendency to allow privies to fall into disrepair. An eleventh hour effort was made in North Bay to correct and repair privies before the frost came. An incomplete job was the result, but it was of great value in improving the worst buildings; making it possible to carry on the service through the winter months. Cobalt, Haileybury, New Liskeard and Sturgeon Falls need a careful survey of the privies. Changes in structure, location and methods of cleansing are urgently required.

My conclusion is that although there are few more important considerations to the Medical Officer of Health in the small urban centres, than the privy, the Medical Officers are making little effort to maintain them in sanitary condition and protect the contents against flies.

VENEREAL DISEASES AND STATISTICS

The general prevalence of these diseases is not known by the district officers, since the returns sent to the department from the various districts are not reported to them. Let me urge that the Department return the venereal disease cards to the respective district officers to be used for statistical purposes and as a check on the medical officers and physicians who are neglecting their duty.

It may be wise to mention here that the district officers are deplorably deficient of statistics regarding their districts. They should have, beside the venereal disease returns just mentioned, monthly or tri-monthly statements of births and deaths with causes, names, ages, etc.

DAIRIES

No great effort has been made in this district to obtain information as to the conditions of dairies. This was largely due to want of time. In Timmins one dairyman wanted a monopoly of the milk business in exchange for an

adequate supply which he promised to pasteurize. His history has not been one that could recommend the exclusion of all other producers. It was also pointed out that none of the others could be excluded, providing they agreed to install as efficient apparatus.

Cobalt has had a serious time with its milk supply but the trouble has largely been a low fat content, rather than dirty milk. The municipal campaign has had, not only the effect of correcting the low fat content, but of giving the town a cleaner product.

ANNUAL REPORT

If the department would set forth the data to be included in the annual reports of the medical officers, as was suggested last year, it would assist greatly in the gathering of evidence for departmental purposes and of improving the quality of these reports. Wider publicity of the annual reports of the medical officers is a duty on the local Board of Health. Interchange of health reports with the neighbouring municipalities, needs to be continually encouraged.

CONCLUSION

The department should standardize the data to be collected by the district nurses so that conclusions can be arrived at by considering their work collectively.

2nd. Limit the jurisdiction of the Inspectors to the health districts and place them under the district officers in order to increase efficiency, place the scientific basis on a higher level, increase co-operation, remove suspicion and distrust, create harmony and remove friction. These men are educationally equal and therefore should be treated on the same level.

3rd. The Department should come to an understanding with the town of Matheson in order to put into operation their sewer system, which is of great importance to the hospital and to the new school. The Department of Education may be willing to help in this solution, since the school was financed by it.

4th. Send the district officers venereal disease and birth and death statistics.

5th. Set forth the data to be included in the annual reports of medical officers.

Respectfully submitted,

W. EGERTON GEORGE
District Officer of Health.

DISTRICT NO. 7.

G. L. Sparks,

District Officer of Health

Subject:—"Annual report for year 1920,
(March to December, inclusive)"

Sir,—I have the honour to submit herewith my annual report of work done in District No. 7 from March 1st to December 31st. inclusive.

After taking over the District on March 1st, twenty-three medical officers of health (covering practically every organized municipality) were notified by letter, of my appointment as district officer.

BIOLOGICAL PRODUCTS

During the month of March, arrangements were made to have supplies of the Provincial Board's free biological products available for emergency distribution from their branch laboratory at Fort William. Dr. N. O. Thomas, Director of the laboratory, co-operated with me in this work; and on March 26th, notified by letter each medical officer of health in the districts of Kenora, Rainy River and Thunder Bay that the following products were available: smallpox vaccine, diphtheria anti-toxin, anti-meningitis serum, tetanus anti-toxin, pertussis vaccine, anti-typhoid vaccine and silver nitrate for prevention of ophthalmia neonatorum.

HEALTH SURVEY OF RURAL SCHOOLS

On May 10th Mrs. B. M. Harvey and Miss E. B. Hubman, graduate nurses temporarily employed since February 11th by the Provincial Board of Health, completed a health survey of fifty-five rural schools in the district of Thunder Bay. Seventy-six inspections were made, a number of schools being visited a second time; and a few schools being visited the third time. Of 1,299 pupils enrolled, as found on first visits, 831 were inspected, the remaining 468 being absent from school. Complete reports were sent to the Board on March 6th, May 12th and July 13th.

ANNUAL CONFERENCE

On May 25th and 26th I attended at Toronto the annual conference of the Ontario Health Officers' Association.

RE-ARRANGEMENT OF DISTRICT

Owing to the fact that the Districts of Algoma and Manitoulin are (after December 31st, 1920), to be included in Health District No. 8, I did not carry on sanitary inspections in these two districts, but visited them only when necessary to deal with outbreaks of communicable disease.

SANITARY INSPECTIONS—(A) ORGANIZED MUNICIPALITIES

Sanitary inspections were made in the following municipalities, reports being sent to the Provincial Board on the dates mentioned:—

Municipality	Date of Inspection	Date of Report
(1) Rainy River.....	June 28-29, 1920.....	August 10, 1920
(2) Nipigon.....	August 18, 1920.....	August 19, 1920
(3) Kenora.....	August 26-27, 1920.....	September 2, 1920
(4) Keewatin.....	August 28, 1920.....	September 7, 1920
(5) Sioux Lookout.....	September 16, 1920.....	Sept. 20, 1920
(6) Schreiber.....	September 24, 1920.....	Sept. 27, 1920
(7) Fort Frances.....	December 1-2, 1920.....	December 10, 1920
(8) Emo.....	December 3, 1920.....	December 11, 1920
(9) Dryden.....	December 17, 1920.....	December 22, 1920

After each inspection I met the local board of health, and gave such assistance and advice as I could. I am convinced as a result of these inspections that local boards of health should pay more attention to enforcing the sanitary requirements of the Public Health Act, and the rules contained in Schedule "B."

- (10) In the City of Fort William I inspected the following:—
McKellar General Hospital, May 18th.
Police Stations and Court House, May 18th.
Municipal Isolation Hospital, May 19th.
St. Joseph's Orphanage, May 20th.
Children's Shelter, May 21st.
Twelve Dairies, June 3rd-5th inclusive.
City Water Supply System, June 7th.

No reports of sanitary inspections in Fort William have been sent to the Provincial Board. I hope to continue these inspections in the cities of Fort William and Port Arthur during the coming year.

(11) On December 14th, I inspected the Thunder Bay District Gaol, in the City of Port Arthur; and sent to the Provincial Board a report dated December 14th. This inspection was made under instructions from the Chief Officer of Health.

(B) UNORGANIZED TERRITORY

Inspections were made at Atikokan (a divisional point on the C. N. Ry.) in the District of Rainy River, on July 26-28, 1920, August 21, 1920 and November 29, 1920. Reports (dated September 1, 1920 and December 7, 1920) were sent to the Board.

On August 28th the following inspections were made in the District of Kenora:—(1) Sewage Disposal Plant Kenora Indian School; (2) 'M. L. A.', Lake of the Woods. Reports were sent to the Board on September 7th.

DAIRIES

During the year thirty-one dairies were inspected:—Fort William 12, Kenora 11, Keewatin 4, Fort Frances 2, Schreiber 1, Emo 1. The equipment, and sanitary conditions of dairies and surroundings, varied to a considerable degree. Serious responsibilities are placed upon local boards of health with regard to the supervision of milk supplies. Every person selling milk should be compelled to observe the requirements of Rule 10, Schedule "B", Public Health Act. The efficiency of all pasteurizing plants should be checked up daily by the local boards' officials, and the local boards should be the judges of the cleanliness of all pasteurized milk offered for sale in the municipalities.

WATER CHLORINATION

Water chlorination systems were inspected at the municipal pumping stations in Rainy River, Fort Frances and Kenora. Chlorinated lime solution is used in each case. Until—at these pumping stations—known quantities of definite strength chlorinated lime solution can be introduced into known quantities of water pumped into the municipal water mains during given periods of time, this very important safeguard in the three municipalities must remain more or less a matter of guesswork.

SEWAGE DISPOSAL

A number of municipalities discharge their sewage without preliminary treatment directly into nearby streams or lakes. As population increases, the time will come when the limits of safe loading for water purification plants will be exceeded.

NIGHT SOIL

The collection and disposal of night soil in some municipalities inspected should receive more careful attention. It is very important that local boards of health realize the necessity of enforcing the requirements of Schedule "B", which is a by-law in force in every municipality until altered by the municipal council with the approval of the Provincial Board.

WATER ANALYSES

Sanitary inspections have demonstrated the necessity for close and continuous supervision by local boards of health over municipal water supplies.

I have endeavoured to persuade medical officers of health (and secretaries of local boards of health) to send to the Provincial Board's branch laboratory at Fort William samples collected at regular and frequent intervals from the public sources of supply; also tap samples wherever necessary to determine the efficiency of chlorination or other treatment.

Up to and including December 31st, forty-two samples were received from the municipalities of Rainy River, Kenora, Keewatin, Nipigon and Schreiber. Four samples were received from the city of Port Arthur, and six samples were received from the city of Fort William source of supply at Loch Lomond. Dr. N. O. Thomas, Director of the laboratory, made bacteriological analyses, and mailed reports to the municipalities. He also collected twenty-two samples from Fort William city taps and I collected ten samples from Port Arthur city taps. Complete reports, dated November 11, 1920, and January 7, 1921, of these eighty-four analyses were sent to the Provincial Board, and it has been shown that constant supervision and care are necessary to insure safe supplies of water for domestic purposes. I would recommend that municipalities, having public water supply systems, be compelled to send for analysis samples collected from the sources of supply twice weekly throughout the year, and where (as at Port Arthur, Kenora, Rainy River, and Fort Frances) it is necessary to chlorinate or otherwise treat the water that daily tap-samples be required to determine the efficiency of such treatment. Also, daily tap-samples should be examined wherever (as at Fort William) the water mains of a municipality, supplied with water from a safe source of supply, are laid through a polluted pond or stream; or where (as at Fort William) there is any emergency connection between the municipal water mains and a fire-protection system obtaining water from a polluted source of supply. In Rosenau's Preventive Medicine and Hygiene, the following statements appear:—"In some instances epidemics originate through criminal thoughtlessness in a town that has been supplied with a pure or purified water;" also—"The admission of polluted water to a pure city supply at any time is inexcusable."

COMMUNICABLE DISEASES—(A) ORGANIZED MUNICIPALITIES

The following lists were compiled from the returns sent to this office from the Provincial Board as received from municipalities in the districts of Kenora, Rainy River, Thunder Bay, Algoma and Manitoulin, the period covered being forty-four weeks from week ending March 6, 1920, to week ending January 1, 1921. (Port Arthur returns cover cases from week ending March 5, 1920 to week ending December 31, 1920, and deaths for thirty-seven weeks only):—

Disease	Municipality	Cases	Deaths
(1) Smallpox—	Fort William.....	5	0
	Port Arthur.....	47	0
	Neebing.....	3	0
	Paiponge.....	1	0
	Schreiber.....	4	0
	Sault Ste. Marie.....	39	0
	Johnson.....	1	0
	Bruce Mines.....	3	0
	Thessalon Town.....	1	0
	Gore Bay.....	5	0
	Total.....	109	0
(2) Scarlet Fever—	Kenora Town.....	15	0
	Rainy River Town.....	8	0
	Worthington Tp.....	1	0
	Fort William.....	191	2
	Port Arthur.....	49	2
	Oliver.....	1	0
	Paiponge.....	1	0
	Shuniah.....	1	0
	Schreiber.....	3	0
	Sault Ste. Marie.....	11	0
	Hilton.....	3	0
	Total.....	284	4
(3) Diphtheria—	Rainy River Town.....	7	0
	Fort William.....	11	1
	Port Arthur.....	8	1
	Sault Ste. Marie.....	6	0
	Bruce Mines.....	1	0
	Thessalon Town.....	1	0
	Total.....	34	2
(4) Measles—	Keewatin Town.....	2	0
	Kenora Town.....	2	0
	Machin Tp.....	1	0
	Dryden.....	43	0
	Fort Frances.....	63	1
	Fort William.....	922	8
	Port Arthur.....	359	1
	Paiponge.....	2	0
	Schreiber.....	27	0
	Sault Ste. Marie.....	41	0
	Day & Bright Adl.....	5	0
	Bruce Mines.....	13	0
	Tarbutt & Tarbutt Adl.....	10	0
	Total.....	1490	10

Disease	Municipality	Cases	Deaths
(5) Whooping Cough—			
	Rainy River Town ..	15	0
	Fort William.....	35	3
	Port Arthur.....	3	0
	Schreiber.....	2	0
	Korah.....	5	0
	Tarbutt & Tarbutt A. ..	3 (and 10 doubtful)	0
	Total.....	63 (and 10 doubtful)	3
(6) Typhoid Fever—			
	Keewatin Town.....	4	0
	Kenora Town.....	2	0
	Fort William.....	3	0
	Port Arthur.....	4	0
	Korah.....	1	0
	Sault Ste. Marie.....	1	0
	Total.....	21	0
(7) Tuberculosis—			
	Fort William.....	19	6
	Port Arthur.....	2	5
	Sault Ste. Marie.....	0	1
	Total.....	21	12
(8) Influenza—			
	Keewatin.....	2	0
	Fort Frances.....	0	1
	Fort William.....	17	7
	Schreiber.....	77	0
	Total.....	96	8
(9) Acute Influenzal Pneumonia—			
	Fort Frances.....	0	1
	Oliver.....	1	0
	Fort William.....	14	4
	Port Arthur.....	0	21
	Schreiber.....	1	0
	Total.....	16	26
(10) Acute Primary Pneumonia—			
	Fort William.....	55	8
	Port Arthur.....	0	2
	Total.....	55	10
(11) Mumps—			
	Port Arthur.....	2	0
	Schreiber.....	12	0
	Total.....	14	0
(12) Chickenpox—			
	Keewatin.....	1	0
	Port Arthur.....	14	0
	Total.....	15	15
(13) Infantile Paralysis—			
	Port Arthur.....	1	0
	Total.....	1	0
(14) Cerebro-Spinal Meningitis—			
	Port Arthur.....	0	2
	Total.....	0	2
(15) Impetigo Contagiosa—			
	Schreiber.....	5	0
	Total.....	5	0
(16) Erysipelas—			
	Fort William.....	4	0
	Total.....	4	0

The above returns were received from twenty-three out of a total of fifty-nine municipalities. Thirty-one smallpox cases were reported from Port Arthur between May 8th and June 11th, no cases being reported since October 1st. In Sault Ste. Marie smallpox cases have occurred at intervals during the year, cases being reported in eight of the ten months.

Scarlet fever cases were reported from Fort William during thirty-eight of the forty-four weeks; and from Port Arthur during twenty-five of the forty-four weeks. It would appear that so long as the cause of scarlet fever remains unknown, an epidemic may spread because of lack of means to promptly recognize carriers and mild cases showing no eruption. Also, lack of accurate means to determine just how long a child remains infective after scarlet fever is another leak in our measures against the spread of this disease.

Diphtheria has been kept well under control, as the reports indicate.

The incidence of measles in urban communities appears to be unaffected by isolation and quarantine. The reports from Fort William and Port Arthur indicate how this infection spreads—evidently during the period of invasion before the cases are recognized and isolated.

Isolated cases of typhoid fever have occurred, but no deaths have been reported. Three cases of typhoid fever were reported from Keewatin for week ending October 16th. On October 30th, the local sanitary inspector collected a sample of water from the Lake of the Woods, twelve feet from shore near where the people with typhoid fever obtained their supplies of drinking water. This sample showed Colon Bacilli in one c. c. The examination of water samples received during the past few months, has demonstrated that in a number of municipalities dangerous pollution of water supplies is a fairly frequent occurrence.

There is need for a sanatorium in this part of Ontario. Often the only way to protect other members of the family from infection with tuberculosis is to remove the patient to a sanatorium.

During November and December thirty-eight cases of influenza were reported from Schreiber. No deaths were reported.

At the invitation of the local medical officers of health three visits were made into organized municipalities in connection with communicable diseases. Reports were sent to the Board on July 16th and August 3rd.

(B) UNORGANIZED TERRITORY

Nineteen visits were made into unorganized territory in connection with communicable diseases; and reports of same were sent to the Board. These trips took from one to ten days each, depending upon the distance from Fort William and upon the accessibility of the community.

The Public Health Act does not provide for local health machinery in unorganized territory, except that District Police Magistrates are "ex-officio" medical officers of health, and constables are "ex-officio" sanitary inspectors. As a result it is difficult to deal with communicable diseases, owing to their being few local officials upon whom to place responsibility. Cases in isolated communities can often only be reached after one or two days' travel; and the necessity of dealing directly with individual cases results in a great deal of time being spent at this work. The lack of local officials, to whom physicians may report cases of communicable disease, adds to the confusion; and it is evident that doctors must be instructed individually to report to the district officer or to the Provincial Board.

VENEREAL DISEASES

(A) *Reporting*.—In accordance with instructions received from the Director, Division of Venereal Diseases, I have pointed out to each medical officer of health, in the municipalities visited, the importance of rendering weekly returns to the Provincial Board. The venereal disease weekly return cards are not forwarded to the district officers; but the Director has informed me that there is still room for improvement in the reporting of venereal diseases.

(B) *Venereal Clinic*.—It is more than probable that a single venereal clinic for the cities of Fort William and Port Arthur will be established in Fort William early in the coming year.

PUBLIC HEALTH NURSING

On October 31st, I accompanied Miss Carr Harris and Miss Whitworth, Provincial Public Health nurses assigned to District No. 7, to Kenora, where it was proposed to establish the initial demonstration centre and child welfare clinic. Since then Miss Carr Harris and Miss Whitworth have carried on this work in Kenora where their efforts have been appreciated; and where it is hoped that the municipal authorities will eventually appoint a public health nurse.

SANITARY SUPERVISION UNORGANIZED TERRITORY

During the month of November Mr. D. McKee, Provincial Sanitary Inspector, commenced his duties in District No. 7, and since then he has inspected as many lumber and other camps as his time would permit. It is evident that, owing to the railway routes, Fort William is the logical headquarters for two Provincial sanitary inspectors, one to supervise camps and small communities in the districts of Kenora and Rainy River, and the other to have charge in Thunder Bay District, or as far east as practicable. One inspector cannot effectively supervise the immense extent of unorganized territory at present under Mr. McKee's jurisdiction.

ANNUAL REPORTS FROM LOCAL BOARDS OF HEALTH

During November and December I requested the secretaries of twenty-eight local boards of health in the districts of Kenora, Rainy River, and Thunder Bay to send to me duplicates of their 1920 annual reports, which they are required (by Section 23, Public Health Act) to transmit to the Secretary of the Provincial Board. Fourteen duplicates were received, and the medical officers of health of Fort William and Port Arthur also sent to me duplicates of their 1920 annual reports. These duplicates have been useful, as they have kept me in more effective touch with health conditions in the municipalities. I would recommend that it be made compulsory for secretaries of local boards of health to send to the district officer duplicates of their annual reports to the Secretary of the Provincial Board. Otherwise these reports are not seen until the Provincial Board's annual report is published, while they are of the greatest value at the time when they are made out by the secretaries of the local boards.

I have the honour to be, sir, your obedient servant,

G. L. SPARKS,
District Officer of Health

DISTRICT NO. 7 1920 DISTRICT NO. 2

Dr. Robt. E. Wodehouse, O.B.E.

PROVINCIAL DISTRICT MEDICAL OFFICER OF HEALTH

TO DR. J. W. S. McCULLOUGH, D.P.H.,
CHIEF PROVINCIAL MEDICAL OFFICER OF HEALTH

Sir,—I beg to report upon the year's activities.

During the month of December, 1919, arrangements were made for an Educational Campaign of the entire district No. 7. Miss Knox of the Division of Maternal and Child Welfare, Provincial Board of Health and Mr. Jones in charge of the Provincial Health Exhibit, were assigned by your office to assist, and the following municipalities were visited:—Blind River, Thessalon, Sault Ste. Marie, Kenora, Fort Frances. A stay was made in each of these places and all the babies born there within the previous twelve months were visited in their homes. Advice or assistance was given to their mothers or guardians in the latest approved methods for the care of the baby. The personal services of Miss Knox were appreciated very much by the people visited. Interesting data with regard to each family was obtained from the mothers and all the mothers were requested to visit the clinics held in the town or city during our stay there. Many interesting facts collected during this tour are enumerated in an article I published in the Public Health Journal, Volume XI. No. 5, May, 1920, entitled "Public Health Information Bearing upon Pre-Natal Subjects."

A considerable amount of lumber camp inspection work was done, assisted by the Sanitary Inspector, Alex. White.

In response to instructions received from your office in March, 1920, I removed to Toronto and assumed duties assigned to me in District No. 2, which is made up of the counties of Huron, Bruce, Grey, Dufferin, Waterloo, Wellington and Perth.

Before July 9th the following places were visited by railroad:—London, Galt, Preston, Rockwood, Guelph (three times), Waterloo, Kitchener (three times) Hespeler, St. Mary's, Stratford, Orangeville, Elora, Fergus, Listowel, Palmerston, Milverton, Harriston, Walkerton, Paisley, Southampton, Port Elgin, Allenford, Mitchell, Seaforth, Clinton, Goderich, Camperdown, Vancouver, Thornbury, Clarksburg, Meaford, Owen Sound, Wiarton, Lion's Head, Hepworth and Hanover.

After a motor car had been provided I visited the jurisdiction of one hundred and five local Boards of Health as well as many Boards regarding visits to certain communities.

Since having the use of the car, at least one hundred and sixty eight centres are enumerated as having expense items, showing visits made to these places during this five months' period. The provision of a car has made possible the accomplishment of Field Work in volume and detail which could not have been attempted without a car. More than half of the rural sections are not served by railway and can only be visited by hiring livery conveyances. Furthermore many features of urban health interest necessitate livery hire to visit them. A large number of these places can themselves be visited as a routine which without a car might be neglected until complaints are made. Sometimes five centres in one day have been visited officially, surveys of Registrars and Board of Health records made and the Board of Health and officers met in round-table conferences.

Each county Medical Society had arranged a meeting for discussion of state medical subjects and addresses were delivered by myself, Prof. Fitzgerald, Dr. George Porter, Dr. Roy McClenahan, Dr. Cunningham and Miss Power, the latter three being Directors of Divisions in the Provincial Board of Health. I wish to record my thanks and appreciation for the above assistance.

The Boards of Trade of Owen Sound and Galt were addressed by yourself, Prof. Fitzgerald and myself. The Chamber of Commerce of Stratford was addressed by Dr. George Porter, Dr. Cunningham and myself. Both the women's and men's Canadian clubs of Kitchener and Waterloo were addressed by Professor Fitzgerald and myself. The Rotary Club of Guelph and local branch of the Canadian Red Cross Society were addressed by me. Public Health meetings for the enlightenment of the general public on health matters were held in Guelph, Galt, Stratford, St. Mary's, Kincardine and Walkerton, and addresses were given by the Hon. Mr. Rollo, the Hon. Mr. Mills, Prof. Fitzgerald, Dr. George Porter, Dr. Cunningham, Miss Power, Mr. Carl Holmuth, M.L.A., and myself. The Director of the Division of Public Health Education, Dr. Middleton, assisted very materially in the propaganda pertaining to these meetings. Grateful appreciation is here acknowledged to all those who kindly assisted.

The two public health nurses operating under the Provincial Board of Health in District No. 2, put on their first demonstration in Galt, and as a result a public health nurse has been engaged there by the local Board of Health. Well-Baby, Pre-Natal and Chest Diagnosis Clinics have also been established in Galt as a nucleus to a permanent Health Centre there.

The nurses afterwards moved to Guelph, where similar success is hoped for, to operate from a Health Centre to be established there.

Owen Sound has decided upon a Health Programme with a public health nurse employed under the Board of Health, and operating from a health centre, which will include Well-Baby, Pre-Natal and Anti-Venereal work as well as a Venereal Clinic.

May I conclude this report by attaching some tabulated data, which may be of interest.

I have the honour to be, sir, your obedient servant.

(Sgd.) R. E. WODEHOUSE

REPORT OF PROVINCIAL SANITARY INSPECTOR

NORTH BAY

NORTH BAY, MARCH 29TH, 1921

*From Alex. R. White, Provincial Sanitary Inspector, North Bay.**To the Provincial Board of Health for Ontario.*

I have the honour to submit for your consideration, my fourth annual report, covering the year 1920, as your Inspector.

The year which has just closed may be said to have been an extraordinary one in so far as our Lay Inspector's branch is concerned. The generosity of the Government in recognizing the arguments of the Provincial Board, together with the claims of Northern Ontario for an increased staff of Sanitary Inspectors, is most gratifying.

The policing of this huge territory, if one might use the expression, the multitude of duties to be performed, the effort required to supervise and prevent the pollution of our rivers, streams and lakes at their head waters, is vitally necessary if typhoid and dysentery epidemics are to be prevented in the towns and cities generally situated on the lower reaches of these large rivers, and using these waters for domestic consumption. It is therefore my opinion that the benefits Northern Ontario will derive from the services of our increased staff of inspectors will be very great indeed. I know of no act on the part of our Government, as effecting the Public Health of the Province, which is being more generally indorsed by all classes of citizens, than that which increased your staff of inspectors from two to five men. It is now possible to apply system, and to co-ordinate our work. It has not been a pleasure to me, I assure you, to present in past years an annual report, the chief import of which was that necessary work could not be performed for lack of assistance. I agree, it may have been difficult for older Ontario to view the picture of the North as seen by those who live and labour in that country. Nevertheless, statistics are not wanting to prove that the North is not only a very large territory, but that such industries as mining, lumbering, paper making and construction work, provide employment for thousands of men at high wages.

The lumbering industry is in itself a huge asset, and is doubly valuable as it provides work in the winter camps for roughly 20,000 men, when very little other employment is available. It is doubtful if many of us stop to ponder just what this industry means to our Province. There is disbursed in wages each season, which is of seven months duration, roughly \$17,000,000 and if one estimates in addition to this, other items such as horse hire, feed, board, cost of camp construction and camp equipment, the total figure covering annual cost of operation, together with capital invested in woods plants, etc., would give us a total in round figures of approximately \$50,000,000. It is our duty, therefore, as a Board, to do all in our power to promote the welfare of the men employed in the camps, as well as to co-operate with the employers who go to make up such an industry, and to attempt to solve and make livable all manner of camp life in the great unorganized territories should be the special work of your increased staff of Sanitary Inspectors. This is the only Public Health work undertaken by the Government for which the Provincial Board has to carry the entire responsibility. It is doubly necessary then, that the work be sufficiently manned.

The mileage travelled during the year was less than formerly. My expense account has therefore been considerably lightened. It has not been possible this year to perform as much routine inspection as formerly, due to our now greatly increased office duties.

LUMBERING STATISTICS, UNORGANIZED TERRITORY

Information supplied by the various Crown Timber Agents shows that during the season 1920-21, one hundred and twenty seven companies operated, [it is to be understood these statistics cover the lumbering season only], and as the operation takes place during the winter, work is carried on equally, part in 1920 and part in 1921. All other matters dealt with cover the year 1920 only.

This number of companies, we find, on inquiring and from the reports of contracting physicians, give us a total of 796 known camps, which provide employment for approximately 21,370 men.

Copies of 160 contracts covering the sanitary supervision of camps, together with the medical care of employees, have been deposited with the Board in conformity with our Regulations. It may be seen that the number of contracts received is greater than the total number of companies operating. This happens by reason of large companies contracting out part of their cut and the contractor preferring to carry his own responsibility. His name, therefore, does not appear on the Crown Timber lists. Only 27 of these corporations have answered the questions which appear on page 27 of our Regulations. We have, of course, received other information, but as a rule this has been so garbled as to be almost useless as statistics.

The monthly reporting by contract physicians, of inspections made, I find totals to 231 visits, together with approximately 100 sketches of new camps. The description given, however in most instances is unsatisfactory, as little detail concerning the sanitary arrangements provided or their condition, is explained. It would appear that many of the unsatisfactory contracting physicians would require to be dealt with and possibly those found not acceptable, eliminated.

CAMP INSPECTIONS MADE

The number of camp inspections made by me during the year was 42, as compared with 81, during 1919. The locations of these camps were near such places as:

Keney's Siding, Iroquois Falls, Cochrane, Low Bush, La-Riene, Timmins, Smooth Rock Falls, Levack, Stackpool, Whitney, Minaki, Sudbury, Township of Blythe, mileage 44½ Smokey Falls.

Possibly the only unfinished business carried over from last year's report is the test case before the Supreme Court, viz.: Rex versus the Abitibi Power & Paper Company of Iroquois Falls. The decision sought by the appellant (the Abitibi Power & Paper Company), was whether your Inspector had the legal authority to order a camp closed by reason of its dangerous location, and after one year of waiting, the Court decided in favour of the Prosecution, so that we now have a splendid working precedent, handed down by the highest court in Ontario.

In connection with the above Company, it was decided at a meeting held in Toronto before our chief officers, Dr. McCullough and Dr. Bell, the Company being represented by Secretary-Treasurer L. R. Wilson and their Solicitor, that if the Company guaranteed to revise their entire camp policy and instituted better sanitary and living conditions, and in addition would separate the woods medical contract from that of the Town of Iroquois Falls, install a scavenger service to care for the outhouses used in connection with these camps, and erect and operate a hospital at Low Bush, all cases then pending in the courts would be withheld until January of the present year when an inspection would be made and a decision arrived at. The Company instituted and put into force a *scavenger service, constructed the Hospital*, and separated the woods contract from that of the town as agreed, thereby providing one of the best services to the men existing in Ontario today. No inspection of the camps could be made as agreed, however, after the date fixed, by reason of all cutting camps closing on December 26th, two months earlier than any previous year, with the full cordage of wood procured, namely 250,000 cords. The contracting physician, Dr. Menzies, reports that particularly in the larger or Company camps, this season great improvements have been effected, and that the main difficulty now lies in reforming the so-called jobber or sub-jobber camps. He further reports that outdoor privies are and have been kept in sanitary condition this season for the first time within his knowledge. Such a statement should be gratifying to the Board when consideration is given the fact that uncared-for bowel and bladder discharges have been causing *great loss of life*, as well as terrific economical losses, by reason of Typhoid and Dysentery, such as we had in the vicinity of Iroquois Falls three years ago.

It is decidedly interesting to note the progress made over a period of four years in camp construction, as applied to the larger and semi-permanent camps. It is understood, of course, that large sums of money cannot be spent upon camps which operate for *one season* only. There is no reason, however, why a sum such as \$5,000.00 cannot be expended on a 75 man camp, situated so that it may operate *three seasons*. Indeed, I herewith present a picture of Camp No. 30, operated by the Abitibi Company, alleged to have cost \$12,000.00, which is to operate *four seasons*, and I am assured by the management such will pay, and pay well.

CONCLUSION RE LUMBERING INDUSTRY

It has been impossible of course, to estimate the additional value of work performed by the new Inspectors, who have only served part of the year, and as much of that time was spent studying here at North Bay with occasional trips with Mr. Taylor or myself as a demonstration. It will therefore be impossible to measure the actual value derived from work carried on by your Inspectors until the annual report for next year is read. A consolidation of all five Inspectors' reports will then be possible covering a full year. Early this year, however, a definite ruling must be given as to just what is expected of these men. After this decision is made, a definite responsibility must be fixed upon each Inspector; this is necessary if overlapping is to be prevented with the office of District Officer. In my own case there seems to have been no difference between my duties and those of the Medical Officer. In Northern Ontario, one has to do as much good as possible regardless of etiquette, provided the work to be done is for the public's benefit, and is properly performed.

There has not been as much hewing to the line, so to speak, as in former years, due to a sweeping change expected in our Regulations. To have ordered changes in camp construction wholesale, in view of the fact that our regulations were being revised, would have been a gross mistake, and an injustice to the lumbermen. I have in my last two reports argued that I did not believe the result required could possibly be reached by our present methods and by use of the present Regulations. Since these were open to many different interpretations, it therefore seemed that to make the proper headway one had to either standardize the ideas to your Inspector's respecting construction, in order to prevent two officials coming upon the same job (at different times) and offering different advice. The company affected by this happening lost money, and one or other of the visiting Inspectors would certainly lose popularity. The company meanwhile would be undecided as to which advice to follow, with the result (to be expected) that nothing could be done. To have standardized the ideas of your officials would be impossible without, of course, a special training, not yet available. The only safe course left, then, to pursue, would seem to be in effecting a standardized method

of construction, to be agreed upon by all interested parties. There are three very distinct advantages in setting up such a standard. Firstly, the lumbermen can see exactly what is expected of them. Secondly, labour knows just what it is entitled to and the futility of demanding more. And in the third place, an ideal is at once set up as a standard in the minds of your officials, making what had previously been doubtful propaganda, now easy and sure.

Great credit should be given to Dr. McCullough, our chief, and to Dr. R. W. Bell, who have spent a great deal of time on this work, in seeing the wisdom of these arguments, and in arranging meetings at Toronto and Ottawa with representatives of Capital and Labour interested, and in creating the four classes of standardized camps, together with a Regulation permitting their use acceptable to all parties, so that you now have before the Board, plans, specifications and revised regulations, which, if properly applied, should place Ontario very easily in the first place in sanitary camp construction. Perhaps the greatest concession made to the employer respecting these Regulations, is that old camps in existence when the new law comes into force, will be allowed to operate without alteration for a period of *three years*. That is, provided they comply reasonably with the present laws, but all new camps to be constructed after the passing of the new order, shall be patterned after one of the four standards set out. Such a procedure will prevent the chaos which usually follows the introduction of a new measure applied sweepingly, immediately after being placed upon the statutes. It is confidently hoped, that five years after the passing of these Regulations, all camps in Ontario will be those of your Standard design. More rapid reform than this can hardly be expected. It is only fair to say that the knowledge supplied by Dr. Bell, already referred to, and Pioneer Officer of our Board, has been of exceptional value in presenting this reform. The Doctor's knowledge of camps and camp life far exceeds that of any of your field officers engaged in this work, and without the history and support which he supplies, these reforms would not be possible.

CUMMUNICABLE DISEASES

Outbreaks of communicable diseases occurred at the following places, and required my personal attention.

	Cases
Cache Bay.....	1
Kenny Siding.....	1
Desaulnier.....	33
Sturgeon Falls.....	.....
South River.....	1
Smallpox	
Levack.....	5
Cutler.....	4
Mac Tier.....	1
Madawaska.....	3
Verner.....	34
Township of Blythe.....	1
Wanipitei.....	1
Kenebeck.....	1
Total.....	86
Scarlet Fever Markstay.....	7

The disease was epidemic, as you will see, at Desaulnier, at Verner and at Sturgeon Falls. At the first two mentioned places, the spread was easily arrested and the disease abated after we supplied the proper machinery, although a number of visits were required by us to apply stiffening to the Local Boards, who, as a rule, get very nervous when apparently control of the situation has been lost.

At Sturgeon Falls, where as you will see, I have left the case record blank, a most astonishing situation presented itself. The Board instructed me to proceed to the town and investigate the extent of the alleged outbreak. This was during November. After spending four days, it was found smallpox had appeared first in January, 1920, but as usual, had been diagnosed as chickenpox. From January, one could easily trace the course of infection, first amongst the relations or intimates of the patients, then as the epidemic gathered force, to the general public, the local Board supplying neither law, order nor common sense.

As I had been instructed to apply the necessary remedy, I at once had two of our Inspectors, namely, Mr. Millar and Mr. Richardson, set to work with the local Inspector to gather evidence at all quarantined houses, with a view to discovering the leak. In the meantime, I met the town council and local board, both of whom when charged with negligence admitted frankly, they did not know how to proceed. Four days later, we had in our possession the knowledge that from January 1st, to November 28th, 174 cases of smallpox had existed, but only half of this number were reported, and that many houses were still placarded, and, as we learned later, many families still at large in whose homes the disease existed without the knowledge of the proper officials. Further investigation showed that diphtheria and scarlet fever also existed and that while the case record was small, the mortality in the former disease was appalling (that is if one viewed the matter in the light of present day statistics). Out of a total

of thirty cases reported, there were *twelve deaths*. In houses where deaths had occurred, we investigated all circumstances, and while a percentage of the cases was probably reported too late, or the physician called in to find the disease too far advanced to effect a cure, there were numerous cases attended by the physician in which valuable time was lost, making a diagnosis without the assistance of a laboratory result, which must be demanded, when diagnosing or releasing cases of this disease. I am sure there were as many cases lost through this lack of early diagnosis, and no antitoxin administered, as were lost through the failure of parents to call in the family physician when symptoms developed, such as a red throat. Many cases would have been prevented had a prophylactic dose of antitoxin been given the entire family when called in to treat the initial patient. Perhaps 50 per cent. of the smallpox cases could have been prevented if proper arguments had been used, and vaccination performed in the entire household when the first case appeared. Aside from the mortality, which should not be excused, the economic loss to the individual and to the Municipality at large by reason of so many wage earners being quarantined, and by the Corporation having their normal indigent list trebled (the poor, as a rule, get most of the trouble). I am sure in round figures the town of Sturgeon Falls lost directly and indirectly during the epidemic, \$20,000. This sum, together with the high death rate from diphtheria, is surely a high price to be required to pay for lack of foresight and knowledge.

The solution which we applied in placing Inspector Millar as resident of the town to keep check on the local work and give advice, undoubtedly was the principal means by which a normal condition was brought about, and to me personally, an excellent precedent. Your officials attended and spoke on communicable diseases and their control, at a public meeting, by request of the town council. This may have been of some benefit, as explanations were well gone into. In this connection, I venture to say if more such meetings were held, the Board's views, together with the transmission of disease, would be better understood.

There are two very vital matters which I should mention in concluding, and which are more particularly applicable to diphtheria and smallpox, if we hope to lower the case record. It is well known that the former disease was much more prevalent during 1920 than it had been for many years. This is somewhat of a reflection, since we have today, laboratories for early diagnosis, which means so much, together with a most liberal supply of antitoxin. The scientific explanation for our apparent return to pre-antitoxin days, I am not familiar with. I am certain, however, there are two factors, which, if properly dealt with, would reduce materially the mortality, as well as the number of cases. These are, first, in cases of non reporting of disease by the householder or physician, within the time limit, a serious penalty be inflicted; second, the attendant physician *must* be held legally responsible for the giving of antitoxin to the patient, together with a prophylactic dose to each of the family. The fact that he is not able to convince the then well members of the household that this is necessary, must not relieve him of his responsibility. If he cannot for some reason or other perform the work, the onus must be upon him to turn this information over to the Medical Officer of Health in writing, within say twelve hours, and in the event of their being no Medical Officer, to the District Officer of Health, these being both legal officers with a fund of similar experiences to draw from. The work should be easily performed. This method should very materially reduce the present astonishing figures in both smallpox and diphtheria. There is possibly a third factor which should be considered. We have had during the year, two very practical lessons with respect to diphtheria. The failure to secure a supply of antitoxin sufficiently prompt, may be disastrous, and although the Board supplies antitoxin and smallpox vaccine free to either the Medical Officer of Health or the Secretary of the local Board, yet we find at times many municipalities do not even know these priceless remedies may be secured free from the Provincial Board. There is therefore no supply available when urgently required.

I am not aware whether any legislation is upon our statutes concerning the matter. I do not think, however, any mention is made in the Public Health Act making it obligatory on a municipal official to see that a suitable supply is kept. If I am correct in that the Act does not compel the Secretary of a local Board or the Medical Officer to carry a supply, we will continue to find small isolated towns and townships without these necessary remedies. If this apparent weakness is to be bolstered up, then it must be obligatory upon the part of someone (to be mentioned) to carry a small supply for each municipality. Failure to do so should bring penalties.

PROSECUTIONS, 1920

During the year, I was compelled to take Police Court action against the following for non compliance with the Public Health Act and Regulations:

March 9th, Delphis Labelle (breaking smallpox quarantine), suspended sentence. Paid-costs.	
March 9th, J. H. Quinville (breaking smallpox quarantine), suspended sentence. Paid costs.	
March, appeal case, Rex vs. Abitibi Power & Paper Company, settled in our favour.	
March 24th, J. McCreary, lumberman, non compliance with Regulations.....	\$ 25.00
April 1st, McCaffrey & Berry, lumbermen, non compliance with Regulations.....	25.00
April 1st, Elbow Lake Lbr. Co., lumberman, non compliance with Regulations.....	25.00
April 1st, French River Lbr. Co., lumbermen, non compliance with Regulations.....	5.00

April 1st, Dr. J. Robb, non compliance with Regulations	25.00
April 1st, Dr. C. F. Jones, non compliance with Regulations	5.00
April 1st, Hocken Lumber Co., lumbermen, non compliance with Regulations.....	25.00
Total Fines.....	\$135.00

Added to the foregoing, I visited by request and at other times, in connection with routine work, the following places:

Kenney's Siding, Cache Bay, Iroquois Falls, Desaulnier, Timmins, Smooth Rock Falls, South River, Sudbury, Espanola, Blind River, Foleyet, Levack, Haileybury, Twin Falls, Stackpool, Little Current, and Cutler, Sturgeon Falls, Mac Tier, Madawaska, Cobalt, Kapuskasing, Minaki, Kenora, Port Arthur, Fort William, Verner, Sault Ste. Marie, Bear Island, Ottawa, Smokey Falls, Markstay. At many of these places, urgent complaints were adjusted and advice given.

In conclusion, let me again say, the year 1920 has been an exceptional one, and I believe during the year more real working machinery has been created for the public's benefit than at any time during my Public Health experience. Let us hope these reforms are applied wholeheartedly, and entirely in the interest of those whom we expect should benefit from their application. Again let me add, the co-operation and support supplied by our Chief, Dr. McCullough, together with Dr. Bell, have left nothing to be desired.

All of which is respectfully submitted.

ALEC R. WHITE,
Provincial Sanitary Inspector.

BRANTFORD

November 15th, 1920.

To the Chairman and Members of the Board of Health.

Gentlemen,—In accordance with the Public Health Act, I beg to submit my Annual Report, for the year ending October 31st, 1920, upon the sanitary and health conditions of the City of Brantford.

The year Nov. 1st, 1919, to Oct. 31st, 1920, has been the busiest year in the history of the Health Department. In common with the rest of the Province, we have been afflicted with a recurrence of the influenza epidemic, with a diphtheria epidemic, a measles epidemic, a mild epidemic of scarlet fever, and an epidemic of smallpox, which we still have with us. The housing problem is still as acute as ever and we may expect to have an abnormal amount of contagion as long as there is the present shortage of houses. To every family a house, to every person a room, is an ideal to be striven for, and when we have attained this ideal we will not have so many of those diseases which are spread by contact of person with person.

Outside of Influenza which caused 34 deaths, and diphtheria which caused the death of eight inhabitants, the contagious diseases have been mild in nature.

I am glad to be able to report that we have the high birthrate of 25 per thousand inhabitants, the low death rate of 12 per thousand inhabitants, and the lowest infant mortality rate in the history of the City, i.e. 90 deaths per thousand babies born.

I would like to draw particular attention to this low infant mortality rate. I have always maintained that we were allowing too many of our babies to die, and I have likewise maintained that we could lower our infant mortality rate by giving our people either an inspected pasteurized milk, or a clean raw milk, from cows which are regularly examined, and are free from tuberculosis.

What are the facts today? The facts are that 85 per cent. of the people of Brantford are drinking either pasteurized milk or raw milk of exceptional cleanliness from tubercular free cows, and we have today the lowest infant mortality rate in the City's history. The other 15 per cent. of the people are mostly drinking the milk of one vendor who refuses to deliver a milk of the required standard of cleanliness and refuses to have his cows tested for tuberculosis. This vendor has also been delivering milk with less than the legal percentage of butter-fat, and then claims that he has the richest, cleanest milk on the market.

I unhesitatingly claim that we can lower our infant mortality rate still further by enforcing the by-law which requires that milk sold in the city shall be either certified raw milk, or inspected pasteurized milk.

While on the subject of infant mortality, I desire to mention the good work of the Baby Clinic, which is conducted by the Social Service League, under the able management of Mrs. Anguish. A "well baby clinic" is an important factor in any endeavour to save the lives of little ones, and if such a clinic had not already been functioning, I should certainly have used all my energies in the endeavour to have such a clinic formed.

Typhoid Fever

Typhoid fever is a water borne disease. There have been 19 cases of typhoid fever in the city during the year, with one death. My investigations have convinced me that the Brantford City water may be absolved from any blame in connection with the cause of at least twelve of these cases, including the one death. In many cases infected wells on streets where city water mains are not laid, have been the cause. In one case I think it is well established, that the typhoid fever was contracted through sucking ice of doubtful purity. Some of the cases were contracted out of the city. There were seven cases of typhoid however, which may have been contracted from our city water. These cases all occurred around the first week in May. All have been constantly using city water and I have reasons for believing that about April 15th some insufficiently chlorinated water was for a few hours circulating in our water mains. If these facts are true, they would explain the cause of these seven cases.

Clean water is a great human need. It is both a luxury and a necessity. No greater sanitary advance has been made in recent years, than in the safe-guarding of public water supplies, by methods of water purification, and by their protection against pollution. The Grand River is not sufficiently protected against pollution, and it is only the chlorination of our water supplies, which prevents this city from being flooded with typhoid cases.

During the year we have, with the ready co-operation of the Water Works officials, kept close tab on the chlorination of the water supply. Raising or lowering the amount of chlorine as the water became more or less polluted. We have had 52 bacteriological examinations of the city water, and have conducted six chemical examinations of our water.

I think our City Council could set itself no more important task than the serious attempt to lay sanitary sewers and public water mains on those streets of our city which are not yet so provided. There are 700 houses unconnected with sanitary sewers.

Smallpox

During the year we have had 73 cases of smallpox. Not one of these cases occurred in individuals who had been previously vaccinated. The Goddess smallpox, attended by her handmaiden the anti-vaccinationist, is one which may only be worshipped from afar. The near approach of smallpox almost always results in a quick conversion to the old and true religion of vaccination.

Unfortunately such deathbed repentances are frequently unavailable where smallpox has already claimed the victim as her own. There are those, of course, whom nothing could change from their worship of false gods, like the citizen who remarked that he would follow his children to the grave, before he would have them vaccinated. As a result of this anti-vaccination sentiment, the public has been forced to pay over four thousand dollars in combating this disease this year. Among school children we have been able to control the disease by excluding the unvaccinated. We do not need to be imbued with the spirit of prophecy, to be able to predict that we shall continue to pay annual tribute to smallpox, until a large proportion of our population has either been successfully vaccinated or has suffered from smallpox.

Scarlet Fever and Diphtheria

We have had 155 cases of these two diseases. The hospital which accommodates these diseases is woefully inadequate, and there is a very urgent need for the building of the proper isolation hospital, which was authorized by the vote of the people last January. The Board of Health isolation ambulance, used to transport these cases to the hospital, has seen its best days, and should be replaced by a motor ambulance which can give quick and efficient service.

Influenza

A report on the influenza epidemic of this year was presented to the Board in March, and I will not refer to this epidemic again, except to say that with the expenditure of one thousand dollars and an efficient organization, we were able to render material help and that as a result, Brantford escaped lightly from a serious menace.

So-Called Minor Contagion

Measles and whooping cough make a total of 300 cases and account for 6 deaths. These diseases are more dangerous than scarlet fever, and these facts should be appreciated by the public. We have excluded all such cases and immediate contacts from school, and have materially helped to limit the spread of these diseases.

Venereal Diseases

The 48 cases of venereal diseases reported during the year by no means indicate the actual number of cases which have occurred. I think that one would not be far out in saying that there have been anywhere from five to ten times that number of cases. Syphilis and gonorrhoea are more widespread than measles, and I am convinced that the establishment of a venereal disease clinic would demonstrate its need. The Board of Hospital Governors have agreed to establish such a clinic, but up to date have been unable to secure the services of a doctor willing to run the clinic. It is sincerely to be hoped that this difficulty may be overcome.

School Medical Inspection

Your Medical Officer of Health is responsible to the Board of Education, for the proper running of the system which functions in our schools. The school doctor, Dr. Alexander, commenced his duties on March 1st, and the reports which have been made to the Board of Education demonstrate beyond the shadow of a doubt, the absolute need of such a system. The results have been the remedying of many physical defects, an increased interest by parents in the health and well-being of their children, and the early discovery of many cases of contagious diseases which otherwise might have escaped notice entirely, or else only have been discovered after they had caused untold mischief among other children. The system when first installed aroused considerable opposition, and it is doubtful if the question had been put to the people, if it would have carried. Today I am confident that the public are almost unanimously behind our system of school medical inspection.

I am attaching to this report, my report to the Board of Education upon the sanitary conditions of our Brantford Schools. This report is included by order of the Provincial Board of Health which is requiring like reports from all medical officers of health.

Plumbing Inspection

I desire to point out once again that the plumbing inspector should be an official of the Health Department. Neglected plumbing in buildings is a serious health menace and the official inspection of such should be done from the health aspect. During the year there have been many cases of duplication of work which would not have occurred had the plumbing inspector been an official of the Health Department.

Milk

Last year we recommended to the City Council the passing of a By-Law providing for the sale of two classes of milk, first raw milk free from dirt, regularly examined and from cows which were free from tuberculosis. Second inspected pasteurized milk. This by-law aroused strenuous opposition, and the opponents of the by-law were more violent than reasonable in their methods of opposition. The Council having passed the by-law, hesitated in the face of the storm which had broken, and finally decided to refer the question to the people in the form of a referendum. The Board of Health was ordered not to enforce the By-Law. As far as the Board of Health was concerned, we were quite content to have the question go to the people, as we felt that with the passing of time, more and more people would become convinced of the absolute need of the measures which we advocated.

I want at this point to give to Mr. Peter Cairns that measure of praise which is his due, for his public spirit in going into the milk business with the idea of producing a raw milk of the required standard. Mr. Cairns at considerable expense, weeded out from his herds all the tubercular cattle, and delivered the first milk in this city which had ever been free from dirt and manure. This was the class of raw milk which we had always maintained should be sold in our city, and it is safe to say that every person who has used this class of milk, will vote in favour of our by-law.

On the other hand three new pasteurization plants were built and the great majority of our citizens are now using pasteurized milk, and are realizing that while this milk is not to be compared to certified raw milk, it is a safe milk and far preferable to the class of unsafe manure infected, tubercular milk which had previously been delivered. The people can certainly be counted upon to vote in support of this measure, provided the question is put to them in a simple and understandable form.

All great reforms are accomplished in the face of opposition. We do not expect less. We have been able to enforce the by-law requiring that all milk shall be bottled. This in itself is a great advance and as usual was opposed. Dirt cannot be hidden in a glass bottle. A tin can covers a multitude of sins.

The general milk supply of the City has never been so clean or so well looked after. The veterinary inspector, Dr. Cutcliffe, has worked in closest touch with this department and has been unremitting in his endeavours to improve our milk supplies. The Council have promised to transfer Dr. Cutcliffe to the Health Department, and when this occurs we intend to formulate a policy whereby we may more efficiently safeguard the sale and exposure of other foods for sale in our City.

During the year we have tested 206 samples of milk, and have prosecuted 4 times in the Police Court for infractions of the milk laws, and convictions were secured in each case.

Composition of Board of Health

I desire to advocate the appointment of at least one Alderman to sit on the Board of Health each year. One of the greatest obstacles to progress along public health lines, is lack of information on the part of the Council. This may readily be overcome by the appointment of one or more Aldermen to the Board. We would not then have men in responsible positions making the silly imputation that one man did all the work of the Department, or that investigations were needed.

Many recommendations of the Board are at present simply pigeon-holed when they get to the Council, i.e. our recommendation that the unsanitary common drinking cup be prohibited in public places.

The Market Place

The sight of our local market on a busy Saturday morning with a high wind blowing, and the dust swirling over the exposed meats and other food stuffs is not one to favorably impress a visitor to our City. Something should be done to remedy these conditions. I would recommend that a round table conference of the Buildings and Grounds Committee, Board of Health and other interested parties, be held to draw up some reasonable plan for remedying the present state of affairs.

Unsanitary Stables, &c.

Unpleasant smelling chicken coops, stables and fish places do not cause disease, but they do offend the aesthetic sense and are not sanitary. We have had many complaints from citizens where on investigation, all we could find wrong was an undue proximity of such places to private dwellings. It is suggested that no such chicken coop, stable or fish place should be permitted to be built within 50 feet of any dwelling house. Such a by-law would, without doubt, make the living conditions of many people more comfortable. Of course buildings already built could hardly be changed, and the suggestions made, refer only to the future.

Tail Race

There was a conference held in May between the Board of Works and the Board of Health and it was decided to fill in the tail race with garbage. The race is now over half filled in, and with the completion of this work, this unsanitary spot will be a thing of the past.

Public Conveniences

We desire to draw the attention of the Council once again to the necessity for public conveniences in such widely separated areas of the City as the North Ward, West Brantford and Bellevue.

In concluding this lengthy report I would draw particular attention to the record of work accomplished by this Department during the year. This record is attached to this report and makes no mention of the hundreds of interviews, the considerable correspondence and other work which can hardly be tabulated, but which takes so much valuable time.

My assistants, Mr. Wm. Glover and Mr. Percy Unsworth, have worked hard and faithfully, cheerfully responding to all calls, including Sunday, holiday and night work. Indeed without their loyal support, it would have been impossible to accomplish the vast amount of work which has been done.

In conclusion I acknowledge with a grateful heart the cordial support and ready sympathy with which the members of this Board have supported this Department. It has been a strenuous year with much good work accomplished.

I remain, gentlemen,

Your obedient servant,

M. O. H.

Vital Statistics Year Ending October 31st, 1920

Population (Assessor's figures).....	32,786
Births.....	829
Birthrate.....	25.31
Deaths.....	418
Deathrate.....	12.78
Marriages.....	416
Infant Mortality Rate.....	90.4

Comparative Rates

Year	1916	1917	1918	1919	1920
Birth.....	25.78	25.3	24.	20.36	25.31
Death.....	14.6	12.7	17.7	14.5	12.78
Infant Mortality.....	113.9	97.9	128.6	106.1	90.4

Notes

1. Still births were excluded in compiling the above figures.
2. In compiling the above figures no deductions were made of persons in the B. G. H., whose homes were outside this city.
3. Compilations were based on the above population. This includes the newly incorporated district of Bellview, which was annexed Jan. 1st, 1920.

Comparative Table Contagious Diseases, Cases Reported Year Ending October 31st, 1920

Year	1916	1917	1918	1919	1920
Scarlet Fever.....	9	11	38	20	52
Diphtheria.....	14	15	44	77	103
Typhoid.....	47	28	19	21	19
Measles.....	323	44	182	3	249
Chickenpox.....					29
Smallpox.....	0	4	1	14	73
Tuberculosis.....					12
Whooping Cough.....	0	3	2	9	51
Mumps.....					3
Cerebro-Spinal.....					1
Meningitis.....					
Influenza, not reportable until 1920.....					366
Venereal diseases, not reportable until 1920.....					48
Total.....	393	105	286	144	1006

In connection with the above figures it should be noted that Influenza (which includes Flu, Pneumonia and other complications), and Venereal Diseases, were reported for the first time in 1920. Also minor contagion was reported to a greater extent than ever before, and it is possible the same thing might be said regarding major contagion. These points make the reported cases the heaviest on record.

Deaths From Reportable Diseases

	1919	1920
Diphtheria.....	8	10
Typhoid Fever.....	1	1
Measles.....	0	3
Whooping Cough.....	2	3
Meningitis.....	4	4
Tuberculosis.....	26	18
Influenza.....	89	34

(two county cases)

In connection with the above it is interesting to note that there are more deaths from tuberculosis and meningitis than cases reported. Physicians are not reporting these cases as they are required to do by the Public Health Act.

Deaths at Various Age Periods

Still born.....	36
Under 1 year.....	75
1 year and over and under 5 years.....	18
5 years, and over and under 15 years.....	16
15 years, and over and under 25 years.....	19
25 years, and over and under 45 years.....	61
45 years, and over and under 65 years.....	99
65 and over.....	127
Age not reported.....	4

Deaths Grouped According to International List of Causes

Group 1 General.....	121
2 Nervous System, &c.....	25
3 Circulatory System.....	62
4 Respiratory System.....	48
5 Digestive System.....	26
6 Genitourinary System.....	17
7 Puerperal State.....	6
8 Skin and Cellular.....	1
9 Bones, &c.....	0
10 Malformations.....	3
11 Early Infancy.....	36
12 Old Age.....	32
13 External causes.....	26
14 Ill defined.....	16

Among the Specific Causes of Death (Not Reportable) Are the Following

Cancer.....	24	Nephritis.....	13
Apoplexy.....	21	Premature birth.....	22
Heart affections.....	29	Old age.....	32
Pneumonia.....	37	External causes.....	26

Deaths caused by external causes include 1 suicide, accidents, drownings, extensive burns, &c. The total of 26 being abnormal, last year there being only 14.

Record of Work Accomplished

Water samples examined.....	63
Water samples examined, chemical.....	63
Milk samples examined.....	206
Cream samples examined.....	3

Examined 265 swabs for Diphtheria.

Examined 19 slides for T. B.

Examined 24 slides for V. D. G.

Examined 8 slides for urine.

Vaccinations 500.

Houses Placarded, Disinfected, Fumigated and Released

47 houses for Scarlet Fever.

98 houses for Diphtheria.

220 houses for Measles.

27 houses for Chickenpox.

51 houses for Smallpox.

49 second hand mattresses fumigated at auction sales.

Issued Exclusion and Release certificates to and examined 600 odd school children.

Notices to abate nuisances all complied with.....	37
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Notices to make sewer connections.....	115
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Number complied with.....	93
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House to house inspection, Belleview District.

Number of earth closets in city inspected.....	700
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All restaurants periodically inspected—in better condition.

All laundries periodically inspected—conditions about the same.

Stables periodically inspected.....	300
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Notices to instal manure bins.....	173
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Number complied with, about.....	30
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All alleyways and back lanes frequently inspected—in much better condition.

Throughout the year many hundred complaints (which are not recorded) have been investigated and properly adjusted. These complaints came by phone, personal interviews and by letter.

The following free bacteriological supplies have been handed out to the Hospital and the Doctors upon request.

Diphtheria anti-toxin

1000 units.....	400 doses.
2000 units.....	700 doses.
5000 units.....	600 doses.
10000 units.....	400 doses.
Diphtheria swabs.....	800 doses.
Vaccine (smallpox).....	1800 doses.
Vaccine (pertussis).....	150 doses.
Vaccine (anti-tetanus).....	100 doses.
Silvernitrate.....	300 doses.
T. B. Outfits.....	150
Wasserman Outfits.....	300
Widal reaction outfits.....	50
Gonorrhea outfits.....	200
Syphilis outfits.....	75

Brantford, Ont., July 2nd, 1920.

To the Chairman and Members of the Board of Education.

Ladies and Gentlemen,—I beg to present herewith my report upon the sanitary condition of the schools under your control.

King Edward School

This school is ventilated by the Plenum System, by which is meant that fresh air is forced by means of fans throughout the building and into the various classrooms. It is generally considered that the Plenum System by itself is not sufficient, and that provision should also be made for extracting the foul air by another set of fans. At this time of year adequate ventilation is of course secured through the open windows. The heating system at this school does not appear to be of the best, as there is but little control over the distribution of the heat, and the complaint is made that in the winter some classrooms will show a temperature of 80 degrees F. while others will be as low as 55 degrees.

The Bubble fountains which are used for drinking purposes are not of the best type. Some authorities consider that a fountain which allows its water to fall back on itself, is absolutely dangerous and might readily cause the spread of those diseases which make their home in the human throat. In any case there can be no question, but that a fountain which throws a stream which does not fall back on itself, is of a better type, and should be installed in new schools in preference to the type now in use.

Lavatories—It is considered that the lavatory walls might with advantage be veneered with light colored glazed tile to increase efficiency in lighting, to discourage markings and facilitate cleansing. The lavatory seats at this school are 17 inches high. This is too great a height and is liable to cause rupture to children predisposed that way. No seat should be higher than 15 inches and a few should be as low as 12 inches. The lavatory windows should be frosted. The ventilation in the lavatories is very poor and it is a question for serious consideration whether lavatories in the basements are not a mistake and whether such lavatories should not be in a separate building, where there is no possibility of odours from the lavatories ascending to the class rooms above.

There are 9 lavatory seats for boys, 12 for girls and 1 for the kindergarten, a total of 22 seats. For a school containing 550 children there should be provided 27 seats, one for every twenty pupils.

There are three classrooms with double seats, but I understand that the School Board is providing single seats for pupils as rapidly as possible.

Regarding the lighting of the classrooms it is suggested that the upper two feet of classroom windows might with advantage be frosted to ensure constant daylight, and the blinds be hung from the lower edge of the frosted area.

Bellerive School

This school has a convection system of heating and ventilation which is much inferior to the plenum and extraction system of ventilation. Previous remarks about the bubble fountains apply also to this school. In addition the pipes which supply drinking water are laid close to hot water pipes and for this reason the drinking water in winter time is frequently disagreeably warm.

The floors in the basement show signs of wear and tear and would be much improved if covered with a thin coating of hard asphalt three-fourths of an inch in thickness.

Lavatories—The seats are 18 inches high, which is much too high. There are 6 lavatory seats for boys and 10 for girls, a total of 16 seats. For a school containing 380 children, there should be provided 19 seats. Previous remarks about lavatories at King Edward School apply to this school. It will be a great improvement when this school is supplied with city water and served by the city sewer. Samples of well water at this school have been examined and found pure but no well can be relied upon for ever.

Alexandra School

This school has a Plenum System of ventilation. Previous remarks about the bubble fountains apply to this school.

The water supply comes into this school through a 3-4 inch pipe, which is much too small a pipe to supply the flush tanks and fountains with water.

The two basement entrances are a trap for the spring floods and the winter snows and should be protected by an overhead roof.

Lavatories—The lavatory seats are out of date. The seats cannot be lifted and consequently cannot be properly cleaned. The holes are set too far back. The seats are 17 inches high, which is much too high. There are 7 lavatory seats for boys and 7 for girls, a total of 14 seats. For a school containing 500 pupils there should be provided 25 seats.

The boys' urinal is not flushed properly. If the water is turned on full it splashes the whole floor and if not turned on full it runs out at the end near the tap, but fails to flush the far end.

The playground of this school is very small.

Central School

This school has a Convection System of heating and ventilation. Previous remarks about the bubble fountains apply to this school.

Some of the classrooms are lighted from improper angles, but cannot be remedied as this is an old school.

Lavatories—There is sufficient lavatory accommodation—12 seats for boys, and 24 seats for girls. The seats are too high however, 17½ inches. The one seat provided for the kindergarten class is 16 inches high and should be four inches lower. This school is kept remarkably clean and sanitary, and is in much better condition than some of the newer schools.

King Edward School

This school is ventilated by the Plenum system. Previous remarks about the bubble fountains apply to this school.

Lavatories are provided with frosted windows. An odour from the lavatories may occasionally be detected in the halls. There are 10 lavatories for boys and 12 for girls. The seats are 17 inches high, which is too high. There are 2 lavatory seats for the kindergarten primary. These seats are 15 inches high and should be only 12 inches high.

Victoria School

This school is heated and ventilated by the Convection system. It is provided with bubble fountains. The basement floors collect a fine dirt very readily and seem harder to keep clean than any other school in the city. They should be covered with a thin coating of hard asphalt 3-4 inches in thickness. Drainage pipes should also be provided in order that the basements may be regularly flushed out.

Lavatories—The seats are of an old type. They are 18½ inches high which is much too high for little children. The holes in the seats are set too far back for little children. The under side of the seats in the girls' lavatory are in a foul condition which is not due to lack of care by the janitor, but to the faulty construction of the seats. I unhesitatingly condemn these seats as being unfit for use and recommend urgent action by the Board.

The boys' lavatory contains 8 seats. The room is ill lighted and ill ventilated. The girls' lavatory contains 9 seats. The room is ill lighted and ill ventilated, and coal dust filters into this lavatory through the thin wooden wall which separates it from the coalbin. There is thus a total of 17 lavatory seats, whereas for a school containing 430 pupils 21 seats should be provided. Ventilation in two class rooms is very poor.

Ryerson School

This school is ventilated by the plenum system. The walls of the halls and the class rooms are very dirty. Merely brushing the walls with one's hands is sufficient to blacken the hand. A dingy, dirty appearance is thus given to the whole school which must have a depressing effect upon the children. It is useless to teach hygiene in such surroundings. I would recommend that during the coming holidays this school be cleaned and painted. This school has a very small playground.

Lavatories—The seats are 17 inches high, too high. Both boys' and girls' lavatories are very dark and ill ventilated. The girls' lavatory is also damp. There are 6 seats for boys and 8 for girls, a total of 14 seats which is sufficient for 270 pupils.

The basement space is too small for the children in wet weather and there is no drainage provided so the basements may be flushed with water.

Dufferin School

This school is ventilated by the plenum system and has an apparatus for extracting the foul air from the rooms. It is provided with bubble fountains.

Basement—There is no means of drainage whereby it may be flushed with water.

Lavatories—The seats are 18 inches high, too high. 12 seats for boys, 12 for girls, 2 for kindergarten primary—15 inches high, should be 12 inches only. A total of 26 seats which is more than enough for 385 pupils. It is a pleasure to testify to the remarkably clean appearance and sanitary condition of this school. It would be splendid if all our schools were in the same condition.

Sincerely,

W. L. HUTTON, M.O.H.

CHATHAM

Chatham, Ont., Dec. 1st, 1920.

To the Chairman and Members of the Board of Health, of the City of Chatham.

Gentlemen,—In accordance with the provisions of the Ontario Public Health Act, I hereby submit my annual report for the year ending November 30th, 1920.

Population of the city is 15,182.

Generally speaking Chatham has been free from any disease that has become epidemic as the following report will indicate; regarding contagious or infectious diseases I would report as follows:

Typhoid Fever—Of the ten cases treated in the two hospitals, four only belonged to the city, and only one of these might be traced to the city water. It was a member of a family which had been badly affected during our real epidemic of the year 1918. One of these cases had just returned from the province of Sasch, feeling badly and compelled to take to bed within a week after his return. The other six were from the surrounding townships whose wells in most instances were found contaminated, all recovered.

Scarlet Fever—Twenty-five cases, up till November 23rd, 14 cases which were spread in all parts of the city; since then the other eleven have developed in connection with one of our Public Schools, the cause has been sought and found to have been an instance where Scarlatina was not considered worth while reporting by the parents and were allowed to mix promiscuously with the public. Two of the whole number have been severe, the worst case being 19 years of age. No fatal cases this year.

Measles—We have had 99 cases of a mild type, no deaths. 10 cases up till end of May, twenty-eight in June, fifty-one in July, and five in each of August and September; none since. The closing of the schools in the latter part of June had a decided controlling influence in preventing further spread.

Chickenpox—13 in December, 1919; 9 in January; 5 in February; 1 in May, and 2 in October, thirty in all.

Smallpox—Two cases, one, that of a Toronto salesman arrived here, feeling very sick, in December, called a doctor, who suspected the trouble at once. The house where he was staying was at once quarantined. Neither of the parties, where he was staying, though over sixty years of age, had ever been vaccinated and refused to be now. The man of the house took the disease on the 25th day after the premises had been cleaned up, and the 16th day after the traveller's arrival. This second case would almost surely have been avoided had he been vaccinated. Both recovered.

Tuberculosis—Only five cases reported, with four deaths.

Influenza—14 cases of mild type.

Diphtheria—Twenty-nine cases; 3 in Dec.; 11 in Jan.; 2 in Feb.; 2 in May; 1 in June; 1 in July; 2 in Aug.; 4 in Oct.; 3 in Nov., no deaths. The general practice here is to give a large initial dose of antitoxin, 10,000 to 40,000 with good results, within the first 24 hours.

Whooping Cough—Sixty-five cases, with one death, due to complication with pneumonia. Quite a number of the doctors are using the Pertussis Serum with only fair results so far. Whether it has not been given soon enough is a question.

Mumps—17 cases, no complication, or deaths.

Erysipelas—Five cases with two deaths.

Impetigo Contagiosa—Two cases, came here from Windsor.

Infantile Paralysis—One case partial recovery as yet.

Venereal Diseases—Gon, 28. Syph, 8, reported by eight of the doctors, out of 19 in the city. It does not look that any way near the full number are reported. Three hundred and thirty-four cases of all contagious diseases have been reported during the year.

The number of births for the year ending Nov. 30th, is 398, that is 26.53 per 1000.

The number of marriages for the year is 263, that is 17.53 per 1000.

The number of deaths for the year is 283, that is 18.87 per 1000.

Have had one hundred and twenty-seven samples of water collected, and sent to the bacteriological department of the Provincial Board of Health at London for analysis; most of the samples have been free from contamination, though during the summer months one out of every four or five would show contamination in 10 or 20 c.c. On the whole the city has been provided with a good, safe and fairly palatable water with an antiquated plant to take care of much more than its capacity during a part of each 24 hours. With the three additional new filters we should be well protected for some years to come.

The average amount of milk sold in the city daily is 2,200 quarts and thirty-one quarts of cream sold as follows: R. Glover, 800 quarts of milk, and 5 or 6 quarts of cream; McGeachy, 800 quarts of milk and 20 quarts of cream; Tuck and Denyernir, 350 quarts of milk and 6 quarts of cream; Stirling, 100 quarts of milk. The other 150 quarts of milk is supplied by Messrs. Dunlop, Johnstone and Lister. The price paid has been from 14 cents to 16 cents per quart. The milk sold during the year in general, has been of better quality than any other year since my appointment as M.O.H. A close watch has been kept on the product supplied, one hundred and twenty samples having been tested without any notice being given, just take a sample from the delivery wagons and possibly from the plant and tested for dirt, tem-

perature, specific gravity, butter fat, and amount of solids. Our city by-law demands a high percentage of butter fat and solids, but not too high for the quality of milk which is produced here, or in this district, when delivered to the user in its natural state. Complaints were lodged in the police court against two producers, by name Horne and Lewis, of Twp. of Raleigh, both were fined. Also two city vendors or distributors, viz. Glover and Lister, the former being fined a second time in a little more than a month's time, the complaint in each being sustained. Only 15 samples were below in butter fat and 30 samples were low in solids, in those examined during the year.

Have made a number of inspections of the Wilson Canadian Co.'s Abattoir premises, and found things fairly satisfactory, except for certain odours, which at times were very offensive to the citizens in general. Much of this nuisance has been overcome and with the promise from the Co. to still add to their plant to practically eliminate the cause of offence, conditions in the near future should be quite satisfactory. In September, along with Doctor McNally, the District Health Officer of the Provincial Board, all the slaughter houses in and around Chatham and used by our local butchers were thoroughly inspected. All but one was in a very unwholesome state. Each were ordered to put their premises in a condition satisfactory to the M.O.H. of the municipality where located, and then to have extensive improvements made by the 1st of May, 1921, in accordance with the Provincial Boards Regulations as defined in copy presented to each, else no license to kill would be granted. Besides each butcher signed an affidavit as to where he kills any and all meats, also where and what he buys from others. All cafes have been inspected closely recently, and certain improvements recommended have been carried out promptly; while the City Council recently passed or rather amended the By-Law controlling all restaurants and cafes whereby all employees and those doing work in these places will be under medical supervision of the M.O.H., so that no person who is suffering from disease will be permitted to remain in or handle foods in future for public use. Medical inspections will be made at least once each month.

All of which I beg to submit, gentlemen, for your consideration.

(Signed) T. L. McRITCHIE,

M. O. H.

Chatham, Ont., Dec. 1st, 1920.

Report of Miss Northwood, School Nurse, for 1920

To John W. S. McCullough, M.D., D.P.H., Toronto.

The supervision and care of the health of the children of three public schools, the attendance being: Queen Mary 720; Central 650, and McKeough 575.

All of Monday and Thursday is spent at Queen Mary School, all of Tuesday and half of Friday at Central School, all of Wednesday and half of Friday at McKeough School. This routine is adhered to except when there is an epidemic or some children's disease, when the time is spent wherever I find can do the most good, the Principal being informed of my change of time.

The late afternoons of many school days are used in visiting parents concerning ailments of the children. Two hundred and twenty-five house calls having been made since December last. No street car conveyance in our city, makes the question of home calls one of moment to the nurse. An inspection of all classes is given twice each month, except the senior fourth grade, particular care being taken to discover Pediculosis, skin diseases, and all contagions. All children with colds are being excluded from school, until their cough is gone, such being the order of our City Health Officer, it also being in accordance with the ideas of the health authorities on school work, such questions being talked over thoroughly with our summer class for school nurses held at the University of Toronto, during July, at which time we received much helpful advice.

The dental survey in the schools by the local dentists during January and February last did much to awaken the interest of the parents to the seriousness of the tooth problem, and the results have been far reaching, over fifty per cent. of all pupils having since had their teeth put in good condition, the parents in all cases, except the soldiers' children, paying for the work done.

The local Patriotic Fund has paid the dental bills of the soldiers' children to the extent of seven hundred dollars, part of this amount being met by the Independent Order of the Daughters of the Empire, of our city.

Enlarged tonsils and adenoid growths have been attended to in sixty-three cases, and about half of these children of soldiers having been paid also by, or out of the local Patriotic Fund, our doctors doing the work of the soldiers' children for half the regular fee. The improvement in the health, also in their capacity and readiness for work of such children, has been very noticeable.

Sixty-eight children have had their eyes attended by a specialist.

Numerous cases of scabies, whooping-cough, measles and mumps and pediculosis have been discovered and excluded from the schools. We have the individual A. D. P. cards, also slips for house identifications concerning all ailments, and I find in most instances the parents take a great interest by complying as much as possible with advice given. We have no clinic work as yet, no free work or funds to pay where the parents cannot afford to pay. I have to each of the Senior Fourth classes a short course of First Aid and Home Nursing.

Sgd. T. L. McRITCHIE,

M. O. H.

Chatham, Ont., Dec. 1st, 1920.

Report of David Holmes, Sanitary Officer for the City of Chatham, for Year Ending Nov. 30th.

To Dr. John W. S. McCullough, D.P.H., Toronto, Ont.

Sir,—I beg to submit the following report for the year ending 30th November, 1920. During the past year one hundred and eighty-four homes or places have been placed under quarantine for the regulation period and until well, as follows: Scarlet Fever, twenty-five cases; measles, ninety-nine; chickenpox, thirty cases; smallpox, one case; and diphtheria, twenty-nine cases. Each of these places were also thoroughly disinfected.

Three lots of pigs were compelled to be removed outside the city limits as being unsanitary and a public nuisance, and could not be kept without infraction of the city by-law.

I have received fifty-one complaints during the year and which were immediately investigated, and the cause where any was found, being corrected or removed. Had six dead animals removed from the city by the garbage men, in accordance with their contract.

One large can of milk delivered in the city for use as food, was ordered destroyed as being unfit for food, also one lot of butter, two lots of eggs, one of poultry, and one of saurkraut. Exposed for sale on the market, not fit for family use, it was condemned and destroyed.

I have made careful inspection of all cow stables, and herds, as well as all utensils for handling and cooling purposes, where milk is produced for use in the city and handed in the report to the M.O.H. to be placed before the local Board of Health for consideration before a license is granted to the individual milk dealers in the city. I have collected one hundred and twenty samples of milk for the M.O.H. to be tested for dirt, butter fat and amount of solids, in order to see if milk sold is up to standard required by the city by-law.

Have assisted with one hundred and twenty-seven samples of water sent to the Departments Laboratory in London for analysis, sending out three samples nearly every week, sterilizing the taps by burning alcohol, before taking the sample.

Have had one thousand and thirty-four closets cleaned during the present year, and believe the city to be in a better sanitary condition than ever before. The present garbage man is giving good service and at intervals announces clean up days when he puts on two additional wagons.

I have inspected all the laundries and cafes weekly and the butcher shops and premises a number of times during the year. All slaughter houses used by the city butchers have been inspected and given orders as to what has to be done before the first of May 1921, when any who have not complied in accordance with the regulations, will be refused a license and not allowed to kill.

(Sgd.) T. L. McRITCHIE,

M. O. H. for Chatham.

FORT WILLIAM

FORT WILLIAM, ONT., November 1st, 1919.

Community health must be understood to be an attainable condition and practically every community may have the degree of healthfulness which it desires to receive and with which it is satisfied.

Sanitary regulations often interfere temporarily with individual comfort and family management and the statement often holds that any interference that tends to protect the health of a community is considered unwarranted interference with vested rights.

The old idea that one's health is one's own business is based upon false and unfounded premises and has no standing in the sanitary code of today.

Fort William, Ont., November 1st, 1920.

To the Chairman and Members, Local Board of Health, Fort William, Ont.

Gentlemen.—In accordance with the provisions of the Ontario Public Health Act, I beg to submit my annual report for the year ending October 31st, 1920:

Vital Statistics

Estimated Population.....	19,729
Death rate per thousand population (excluding still births).....	16.78
Death rate from Influenza alone.....	2.37

These rates included all who died in this municipality and all who died in other municipalities and whose deaths were registered here.

Thirty-seven non-residents died in this municipality, the larger number having come here for treatment at the general hospital.

Twenty-two deaths which occurred in other municipalities were registered here.

The death rate excluding both non-residents who died here and deaths of non-residents registered here is 13.07.

Excluding only non-residents deaths reported here, is 15.72.

Birth rate per thousand population (excluding still births) 36.36.

Infant mortality rate per thousand births, including eight non-residents brought here for treatment 146.44.

Twenty persons were summoned to Court during the year. The causes for summons were as follows:—

Breach of Milk By-Law.....	4
Keeping hogs contrary to law.....	8
Failure to comply with notice re nuisances.....	6
Carrying on an offensive trade without license.....	1
Breaking quarantine.....	1

Thirteen of these were convicted and paid fines aggregating \$245.00. One was dismissed on suspended sentence. One failed to appear. The others were dismissed with warning.

The following products and supplies from the Provincial Board of Health were distributed.

Diphtheria Antitoxin.....	975,000 units
Tetanus Antitoxin.....	28,500 units
Pertussis Vaccine.....	305 c. c.
Typhoid Vaccine.....	6 doses
Smallpox Vaccine.....	1,032 tubes
Wasserman Tubes.....	22 tubes
Culture Tubes.....	40 tubes
Sterile Swabs.....	21 swabs
Influenza Serum.....	295 c. c.

Smallpox

There were twenty-four cases of this disease reported. There were no deaths. Statistics for the last five years follow:

Year	Cases	Deaths
1916.....	3	0
1917.....	2	0
1918.....	0	0
1919.....	0	0
1920.....	24	0

Scarlet Fever

There were three hundred and two cases of scarlet fever reported during the year with three deaths. This is one hundred and three less cases than last year. The epidemic so difficult to control on account of the mildness of the cases is at last subsiding.

Below appear the statistics by month, age, sex, recovery and death:

Month	Cases	M.	F.	Under 5 yrs.	5-9 yrs.	10-14 yrs.	15-19 yrs.	Over 19 years	Reco- very	Death
1919										
Nov.	31	16	15	6	14	9	0	2	31	0
Dec.	45	24	21	6	26	9	3	1	45	0
1920										
Jan.	49	27	22	18	16	11	1	3	39	0
Feb.	54	26	28	11	17	10	2	14	53	1
Mar.	55	24	31	10	19	12	2	12	54	1
Apr.	21	9	12	2	12	3	2	2	20	1
May	16	5	11	3	5	3	2	3	16	0
June	6	2	4	0	4	1	0	1	6	0
July	3	3	0	2	0	0	1	0	3	0
Aug.	5	2	3	1	1	2	1	0	5	0
Sept.	4	3	1	3	0	0	1	0	4	0
Oct.	13	7	6	2	6	2	0	3	13	0
Totals.....	302	148	154	64	120	62	15	41	299	3

Two deaths occurring in other municipalities were reported here and are not included in above summary.

Diphtheria

There were twenty-two cases of this disease reported with one death,

Year	Cases	Deaths
1916.....	33	5
1917.....	13	1
1918.....	12	2
1919.....	22	1
1920.....	22	1

Measles

There were three hundred and eighty-four cases of this disease reported with five deaths. Statistics follow:—

Year	Cases	Deaths
1916.....	581	7
1917.....	338	3
1918.....	12	0
1919.....	0	0
1920.....	384	5

Whooping Cough

There were sixty cases of this disease reported with three deaths. Statistics follow:—

Year	Cases	Deaths
1916.....	196	2
1917.....	10	17
1918.....	259	1
1919.....	2	0
1920.....	60	3

Erysipelas

There were nineteen cases reported with one death.

Year	Cases	Deaths
1916.....	6	1
1917.....	13	1
1918.....	4	0
1919.....	1	0
1920.....	19	1

Chickenpox

Year	Cases	Deaths
1917.....	97	0
1918.....	75	0
1919.....	31	0
1920.....	72	0

Rubella

Year	Cases	Deaths
1917.....	181	0
1918.....	25	0
1919.....	1	0
1920.....	0	0

Mumps

Year	Cases	Deaths
1917.....	90	0
1918.....	92	0
1919.....	1	0
1920.....	0	0

Pulmonary Tuberculosis

There were twenty-one cases of tuberculosis reported with ten deaths.

Influenza

There were one hundred and twenty-one cases of influenza reported with forty-seven deaths.

Influenzal Pneumonia

There were sixty-five cases of this disease reported. The deaths occurring from influenzal pneumonia are all reported under influenza, that being the primary cause of death.

Venereal Diseases

Syphilis, 23 cases; Gonorrhoea, 41 cases; Cancroid, 1 case.

Typhoid Fever

There were four cases of typhoid fever reported. The sources of these cases were:

S. S. Hamonic.....	1 case.
Squaw Bay.....	1 case.
Kakabeka Falls.....	1 case.
Winnipeg.....	1 case.

There were two deaths, viz.: the case from Winnipeg and a case from North Bay, reported as a case in last year's report and since died.

Year	Cases	Deaths
1916.....	18	2
1917.....	11	0
1918.....	5	0
1919.....	5	0
1920.....	4	2

A general resume of the communicable diseases reported, follows:

	Cases	Deaths
Measles.....	384	5
Rubella.....	0	0
Mumps.....	0	0
Scarlet Fever.....	302	3
Whooping Cough.....	60	3
Chickenpox.....	72	0
Erysipelas.....	19	1
Typhoid Fever.....	4	2
Smallpox.....	24	0
Diphtheria.....	22	1
Tuberculosis.....	21	10
Poliomyelitis.....	2	0
Cerebrospinal Meningitis.....	0	0
Primary Pneumonia.....	31	9
(Influenzal Pneumonia.....	65	.....
(Influenza.....	121	47
	<hr/> 1127	<hr/> 81

Isolation Hospital Report

Patients admitted:—

Scarlet Fever.....	119
Measles.....	6
Measles and Broncho-pneumonia.....	1
Scarlet Fever, Diphtheria and Flu.....	1
	<hr/> 127

Hospital days, 4826.

There was but one death, the case of Measles with Broncho-pneumonia. The child, age two years, was desperately ill when brought in from a neighboring municipality.

This excellent showing reflects the excellent work being done by the matron, Miss M. C. Mills, and her assistant, Miss Grace Brown.

Accounts

Salaries of regular employees.....	3363.00	
Salary of temporary employees.....	1120.16	
Maintenance Account.....	4,822.02	
	<hr/>	\$9,305.18
Credits:—		
Collection of Accounts.....	\$ 790.75	
Garden Produce.....	200.00	
	<hr/>	\$ 990.75
Net Cost.....		\$8,314.43
Cost per patient per diem.....		\$ 1.92

Report of Visiting Health Nurses

Miss F. K. Fisher, who was with this department for five years, left us July 1st, and was succeeded by Miss T. Gerry. During part of the year three additional nurses were engaged, particularly to make house to house visits. These totalled three thousand, one hundred and eight (3108) visits, not including those made by a staff of nine extra nurses, employed for the month of November, 1919, to endeavour to locate missed cases of scarlet fever. These visits probably numbered eight thousand.

Miss Fisher's Report:

Month	New Born Babies	Breast Fed	Cows' Milk	Miscellaneous Foods	Special Calls	Re-visits
1919						
Nov.....						14
Dec.....	43	31	4	8	3	6
1920						
Jan.....	30	21	4	5		6
Feb.....					6	
Mar.....					2	
April.....	86	53	23	10	3	22
May.....	172	109	32	31	5	227
June.....	40	40			65	174
<i>Miss Gerry's Report:</i>						
July.....	199	118	30	51	4	218
Aug.....	50	35	5	10	40	399
Sept.....	48	38		10	28	432
Oct.....	39	32	4	3	22	418
Total	707	477	102	128	178	1916

Other Visits Made

To cases of scarlet fever under quarantine.....	520
To cases of Diphtheria under quarantine.....	53
To take diphtheria swabs.....	27
To cases of Chickenpox.....	17
To cases of Whooping Cough.....	3
To quarantined houses (patient in hospital).....	78
To school absentees.....	4340
To certify children back to school.....	59

This makes a total of over ten thousand visits exclusive of those made by the special nurses in November.

Births Registered in the City of Fort William

For the year ending October 31st, 1920.

1919	Total	Males	Females	Twins
1919				
November.....	62	30	32	
December.....	62	36	26	
1920				
January.....	48	28	20	1
February.....	66	39	27	3
March.....	78	34	44	1
April.....	61	33	28	3
May.....	86	42	44	1
June.....	50	26	24	3
July.....	79	47	32	2
August.....	84	47	37	
September.....	73	43	30	1
October.....	51	26	25	
	800	431	369	15

Still Births

	Males	Females	Total
1919			
November.....		1	1
December.....	1	2	3
1920			
January.....	1		1
February.....	1	1	2
March.....		1	1
April.....	2		2
May.....		2	2
June.....	4	1	5
July.....	1		1
August.....	2	2	4
September.....	1	3	4
October.....	6	1	7
	19	14	33

Laboratory Report

Until this year I had conducted a small laboratory in the City Hall. On November 1st, 1919, a Provincial Board of Health Laboratory was established in the City Hall, under the direction of Dr. N. O. Thomas.

Dr. Thomas has very kindly submitted me a report of the work he has done for this municipality, the scope of which shows the value of this laboratory to this community.

Laboratories, Fort William, November, 1920.

Work Done in This Laboratory for the Municipality of Fort William During the Year Ending October 31st, 1920.

Milk samples from dairymen for dirt and butter fat.....	195
Miscellaneous samples.....	402
Diphtheria Swabs for diagnosis.....	153
Positive.....	19
Negative.....	134
Swabs for release from quarantine.....	34
Positive.....	15
Negative.....	19
Sputa for Tubercle Bacilli.....	240
Positive.....	38
Negative.....	202
Blood for Typhoid Reaction.....	20
Positive.....	6
Negative.....	14
Syphilis—Wasserman Reaction.....	518
Positive.....	121
Negative.....	397
Treponema Pallida.....	4
Positive.....	2
Negative.....	2
Gonorrhoea.....	152
Positive.....	59
Negative.....	93
Water for Bacteriological Analysis.....	23
Water for Chemical Analysis.....	23
Total.....	1764

Summary of Milk Tests

Name of Vendor	No. of Tests	Fat %	Clean	Soiled	Dirty
Thompson Bros.....	18	3.55	14	3	1
Crescent Dairy Co.....	23	3.22	11	7	3
H. Crabtree.....	17	3.43	10	6	1
Jas. Otway.....	14	3.42	11	3	0
F. McCarthy.....	15	3.44	12	3	0
B. Webster.....	17	3.47	13	3	1
F. Morris.....	23	3.18	15	6	2
P. Rizzo.....	12	3.69	4	3	5
H. Dougherty.....	13	3.64	7	1	5
L. Marsutti.....	10	3.74	3	6	1
F. Scollie.....	10	3.00	3	4	1-2 no test.

Sanitary Inspector's Report

Alfred J. Bolus, M.R. San. 1,

Sanitary Inspector.

Dr. E. B. Oliver, Medical Officer of Health, Fort William, Ont.

Dear Sir,—I beg to submit for your approval my report of the work done in my department for the year ending October 31st, 1920.

Visits to Business Premises

Continual watchfulness has been exercised of all places where food is sold, or food stuffs, prepared for sale. In this connection I am pleased to say how well kept the majority of the stores are. It has however, been necessary to bring one delinquent before the magistrate, and a few will be required to better conform with the regulations, or steps will have to be taken to close their premises. Apart from meat I have only had to condemn a few barrels of apples.

As a result of action taken, the basements of several of our restaurants are kept cleaner, and several used as sleeping quarters have been cleared out, or re-arranged.

Number of Visits Made

Butcher Stores.....	708
Bakeries.....	226
Candy Stores and Cafes.....	1200
Rooming Houses.....	189

Application for nine new licenses were made during the year and after careful inspection of the premises, recommendation was made to grant six, three others being refused.

Dairies

There are now thirteen dairies operating in Fort William, three of which rely on the farmers for their milk supply, the others keeping their own cows. One of the dairymen (Mr. John Otway) sells his milk in Port Arthur.

During the year a special visit was made to each of the thirteen dairies for the purpose of a detailed report as to buildings, cattle and general conditions. These reports are on file in my office and will be used during the coming year in an endeavour to bring these places up to a higher standard. In several instances the great rise in cost of material and labour has prevented dairymen from carrying out the improvements they otherwise would have done.

Abattoir

I am pleased to be able to report a successful period at the abattoir, as will be seen by the figures given below. The number of animals slaughtered was in excess of the previous twelve months by about one thousand head. In addition I am able to report that the much needed renovations which I have strived to get done for so long are now under way, and when same are completed, I believe Fort William will have a much more sanitary slaughterhouse than has hitherto served.

Much good meat has been brought in from Winnipeg, and the local dairymen and farmers have made good use of the place.

During the year, four thousand, one hundred and thirty-two (4132) pounds of meat have been condemned as unfit for food and destroyed at the Incinerator. I made three hundred and eight (308) visits to the abattoir during the year.

Summary of Animals Slaughtered During Year

	Cattle	Pigs	Calves	Sheep	Total
November, 1919.....	82	89	68	1	240
December, 1919.....	143	123	71	4	341
January, 1920.....	74	56	43	14	187
February, 1920.....	43	60	14		117
March, 1920.....	42	31	22		95
April, 1920.....	56	26	84		166
May, 1920.....	53	44	100		197
June, 1920.....	81	20	75	1	177
July, 1920.....	93	13	91		197
August, 1920.....	109	8	82	92	291
September, 1920.....	156	24	62	183	425
October, 1920.....	166	25	78	58	327
Totals.....	1098	519	790	353	2760

Meat Condemned

November, 1919.....	1212 lbs.
December, 1919.....	32 lbs.
January, 1920.....	492 lbs.
February.....	12 lbs.
March.....	525 lbs.
April.....	104 lbs.
May.....	450 lbs.
June.....	640 lbs.
July.....	
August.....	350 lbs.
September.....	
October.....	315 lbs.
	<hr/> 4132 lbs.

Communicable Diseases

During the year I have made 582 visits to homes in connection with communicable diseases, and fumigated 100 rooms. As regards fumigation, it is worthy of note that nothing in this line has been done since June last, the medical profession generally placing little value on it when taking into consideration the difficulty of carrying such work out in the thorough manner necessary to ensure its success. I have at all opportunities preached the gospel of fresh air and sunshine, and plenty of soap and water as germ killers with the use of liquid disinfectants when considered necessary.

The Market

The city market opened for business on May 11th, and closed after a successful season on August 29th. The market was opened two days of each week, viz.: Tuesdays and Fridays.

The products offered for sale was without exception of excellent quality and well served. Some small amount of criticism was offered in regard to one man selling meat exposed to flies. I would suggest that in future more provision be made for butcher stores and fish, especially that these stalls be placed on the gangway where the rest of the business is done. I should like also to call attention to the stabling of horses inside the market building, thereby causing flies to assemble. Teams should be kept outside or plenty of screened stalls for the sale of meat, etc., provided.

Sewer Connections and Plumbing Installations, Etc.

During the year fifty-three old premises have been plumbed, nineteen of which were installed by the City, thus eliminating fifty-three privies.

Nuisances

All nuisances found by me or cases reported as such by the public have received attention, investigation having been made as found necessary to remove the cause of complaint. Three hundred and forty-two written notices were sent out. In seventeen cases it was found necessary after other means had failed to bring offenders before the Police Magistrate.

Total amount of fines paid was \$160.00.

Three hundred circulars were posted in the Coal Dock re keeping animals and some improvement has been made, but the nuisance is still in evidence, several of the offenders again keeping hogs, etc. in prohibited places. It will be my intention to make further efforts to improve this neighborhood by reducing the number of animals and insisting on proper accommodation and manure boxes for such as are permitted to remain.

Apartment Blocks

One hundred and thirty visits were made to apartment blocks during the year and it speaks well for the management of the various buildings when I have to report no complaint has been made by any occupant of rooms therein.

Considerable difficulty is experienced in persuading the owners of these blocks to provide proper accommodation for the garbage, and also in getting the occupants to deposit their rubbish in the proper place.

I would suggest that the Board of Works be asked to have their men instructed to clean up garbage at these blocks, whether it is or is not in a bin. This would encourage the owner to provide bins, and would make it easier to convict the habitual offender.

Public Institutions

I accompanied Dr. G. L. Sparks, Prov. Dist. Officer of Health when making a sanitary survey of the following places:

McKellar Hospital.
Isolation Hospital.
St. Joseph's Orphanage.
Donald Street Police Court (cells).
West Fort Lock-up (Cells).
Children's Shelter.
Each of the dairies and several farms.
C. P. R. Bunkhouses.

Visits of inspection were also made to Loch Lomond with Dr. Thomas re City Water Supply, to the Kam River re sewer outlets and to the site of the new pulp mill.

Wholesale Business Premises

No complaints have been received from any source in regard to the conduct or condition of the wholesale houses supplying food stuffs, and visits have shown that each of these places are kept in a very creditable condition.

All of which is respectfully submitted,

ALFRED J. BOLUS,
Sanitary Inspector.

Infantile Death Rate Summary by Wards

Ward	Population	Births	Rate per 1000 pop.	Deaths Under 1 yr.	Rate per 1000 births	Still Born	Rate per 1000 births
1.....	7443	356	47.83	61	171.34	10	28.09
2.....	6027	169	27.87	21	124.26	11	65.08
3.....	2044	62	30.33	2	32.25	2	32.25
4.....	4206	130	30.99	15	115.38	10	76.92

Analysis of Deaths under one Year by Wards

	Total	Ward 1	Ward 2	Ward 3	Ward 4	Non- Resi- dents
104 Diarrhoea and Enteritis.....	31	23	3		4	1
151 Congenital Debility, etc.....	35	19	10	1	3	2
152 Other Diseases of Early Infancy.....	18	8	3	1	3	3
91 Broncho-pneumonia.....	4	4				
150 Congenital Malformations.....	3	2			1	
10 Influenza.....	5	2	1		2	
8 Whooping Cough.....	1	1				
6 Measles.....	1	1				
76 Diseases of the ears.....	1	1				
89 Acute Bronchitis.....	2		2			
109 Intestinal Obstruction.....	1		1			
92 Lobar Pneumonia.....	2		1		1	
71 Convulsions of Infants.....	1				1	
	105	61	21	2	15	6

Deaths

Number on International List.		Number on International List.	
10 Influenza.....	47	104 Gastro Enteritis (under two years)... 42	
151 Congenital Debility, etc.....	35	152 Other Diseases peculiar to early infancy.....	18
79 Organic Diseases of the Heart.....	16	120 Bright's Disease.....	10
92 Lobar Pneumonia.....	12	64 Cerebral Hemorrhage.....	9
28 Tuberculosis of the Lungs.....	10	169 Accidental Drowning.....	6
91 Broncho-pneumonia.....	8	7 Scarlet Fever.....	5
189 Ill-defined.....	6	81 Diseases of the Arteries.....	5
6 Measles.....	5	45 Cancer of Unspecified Organs.....	4
154 Senility.....	5	137 Puerperal Septicaemia.....	4
105 Diarrhoea and Enteritis (over two years).....	4	175 Traumatism by Other Crushing.....	4
8 Whooping Cough.....	3	41 Cancer of the Peritoneum, Intes- tines, Rectum.....	3
50 Diabetes.....	3	76 Diseases of the Ears.....	3
54 Anemia.....	3	150 Congenital Malformations.....	3
108 Appendicitis.....	3	166 Conflagration.....	3
165 Acute Poisonings.....	3	1 Typhoid Fever.....	2
167 Burns.....	2	30 Tuberculous Meningitis.....	2
14 Dysentery.....	2	47 Acute Articular Rheumatism.....	2
43 Cancer of the Breast.....	2	71 Convulsions of Infants.....	2
48 Chronic Rheumatism.....	2	82 Embolism and Thrombosis.....	2
78 Acute Endocarditis.....	2	103 Diseases of the Stomach.....	2
89 Acute Bronchitis.....	2	115 Other Diseases of the Liver.....	2
109 Hernia, Intestinal Obstruction, etc....	2	18 Erysipelas.....	1
9 Diphtheria.....	1	42 Cancer of the Female Genital Or- gans.....	1
29 Acute Military Tuberculosis.....	1	60 Encephalitis.....	1
56 Chronic Alcoholism.....	1	72 Chorea.....	1
59 Other Chronic Poisonings.....	1	99 Diseases of the Mouth and Annexa..	1
69 Epilepsy.....	1	131 Cysts and Other Tumours of the Ovary.....	1
74 Other diseases of the nervous system..	1	135 Puerperal Hemorrhage.....	1
110 Other Diseases of the Intestines.....	1	157 Suicide by hanging or strangulation	1
132 Salpingitis.....	1	174 Traumatism by Machines.....	1
134 Accidents of Pregnancy.....	1		
145 Other diseases of the skin and annexa.	1		
172 Traumatism by fall.....	1		
186 Other External Causes.....	1		
		Total.....	331

There were thirty-seven deaths of non-residents in this municipality. The causes of deaths were as follows:—

10 Influenza.....	4	28 Tuberculosis of the Lungs.....	4
92 Lobar Pneumonia.....	3	104 Gastro Enteritis (under two years)...	2
151 Congenital Debility.....	2	45 Cancer of Unspecified Organs.....	2
120 Bright's Disease.....	2	1 Typhoid Fever.....	2
6 Measles.....	1	14 Dysentery.....	1
49 Cancer of the Stomach, Liver.....	1	41 Cancer of the Peritoneum, intestines, rectum.....	1
42 Cancer of the Female Genital Organs.....	1	78 Acute Endocarditis.....	1
50 Diabetes.....	1	109 Hernia, Intestinal Obstruction.....	1
105 Gastro Enteritis (over two years).....	1	132 Salpingitis.....	1
115 Other diseases of the Liver.....	1	142 Other diseases peculiar to early infancy.....	1
137 Puerperal Septicaemia.....	1	189 Ill-defined.....	1
154 Senility.....	1		
169 Accidental Drowning.....	1		

37

There were twenty-one deaths which occurred in other municipalities which were reported here. The causes of death were as follows:—

10 Influenza.....	4	175 Traumatism by Other Crushing.....	2
64 Cerebral Hemorrhage.....	2	167 Burns.....	2
7 Scarlet Fever.....	2	30 Tuberculous Meningitis.....	1
72 Chorea.....	1	78 Acute Endocarditis.....	1
79 Organic Diseases of the Heart.....	1	92 Lobar Pneumonia.....	1
105 Gastro Enteritis (over two years).....	1	120 Bright's Disease.....	1
152 Other diseases peculiar to early infancy.....	1	169 Accidental Drowning.....	1
		Total.....	21

General Expense Account—1919-1920

Salaries.....	\$11,826.74
Temporary Employees.....	2,572.56
Maintenance of Isolation Hospital.....	5,942.14
Carfare.....	176.25
Printing and Stationery.....	123.18
Office and Laboratory Equipment.....	59.19
Antitoxin.....	33.08
Automobile.....	261.90
Conventions.....	100.00
Ambulance.....	16.00
Utilities.....	50.00
Ice.....	52.00
Fumigators.....	56.40
Stamps.....	28.00
Incidentals.....	237.07
Abattoir.....	664.80
	<u>\$22,199.31</u>

Credits

Revenue from Abattoir.....	\$ 710.75
Isolation Hospital Accounts.....	790.00
Garden Produce (Isolation Hospital).....	200.00
Police Court Fines.....	245.00
Refund on Decorating.....	33.08
	<u>\$ 1,979.28</u>
Net Cost of Department.....	\$20,220.03
Per capita cost.....	\$1.024

Respectfully submitted,

EDWARD B. OLIVER,
Medical Officer of Health.

GALT

To the Chairman and Members of the Local Board of Health.

Gentlemen,—In accordance with the provisions of the Ontario Public Health Act, I beg herewith to submit my annual report, for the year ending Oct. 31st, 1920.

Re Typhoid Fever

The great outstanding feature of this report is the fact that our municipality is again free, for the 3rd time, from Typhoid Fever (excepting one man, who is being treated at the present time in the General Hospital, and, in my opinion, the source of infection did not arise in Galt) due, no doubt, as I stated in my last reports to the excellent condition of our water supply, and the careful supervision of the milk distributed to our citizens—yet when we know how easily milk can be contaminated; that one-fifth of all the deaths registered in Canada and the United States, are of infants under two years, and that cow's milk, next to the mother's is the normal and the best food for the baby, should it not impel us to use every endeavour possible to supply our citizens with pure, clean and wholesome milk?

It is very gratifying to me to be able to report that the milk supply has greatly improved, both in cleanliness and in butter-fat, and that one great source of danger has been removed (that of the transmission of the bovine tubercle) by having our entire supply of milk pasteurized.

Now Mr. Chairman, is this not something to be very proud of, when so far as I can learn, Galt is the first and only city of its size in the Province of Ontario, that has thus far accomplished it? Yet, notwithstanding this greatly improved condition, I believe that the city will never attain the standard it should, until it has one central pasteurizing plant, owned and operated by the city.

Re Infantile Mortality

Just here, would it not be appropriate to again call your attention to the fact that the death-rate among the children still continues to be too high, and in my judgment, the only method we can use to reach the public and prevent this useless waste of human life, is by a form of medical education that will reach the homes through the employment of a visiting health nurse, as well as the establishing of a baby clinic, under the control of the local board of health, fully equipped and managed by the Health Nurse.

Re Privies

The keeping of the outside privies clean and in a sanitary condition has been less trouble than heretofore, on account of the great reduction in their numbers, but it will never be satisfactory until the owners of every outside closet on the lines of sewers are compelled to connect and do away with the unsightly and unsanitary ones.

Re Public Lavatories

In the early part of this year, the local board of health met a committee on the city council, and after a careful consideration of the question of a public lavatory, decided that Galt should have one, and submitted a recommendation to the City Council that one should be placed in the basement of the market building, as soon as the Council could finance the same.

Re Disposal of Garbage

This question is a serious one, and must be considered at no distant date by the Board and the City Council, because the present dumps are about filled up, and to locate others is impossible without going outside of our municipality.

Re Venereal Diseases

Judging from the number of cases reported by the medical men of Galt, it would appear that the Venereal Disease is on the decline, but notwithstanding this fact, that the numbers reported are less, I am very doubtful if such is the case, as I am satisfied in my mind that all cases are not reported to the Medical Officer of Health, as are required by the Venereal Disease Act.

Re Communicable Diseases

It is very regrettable that the number of communicable diseases has been greatly in excess of last year, and how to prevent this state of affairs has cost me a great deal of thought and worry, and, after a careful investigation, I have come to the conclusion, that the principal cause, is the neglect on the part of the home, in not reporting to the Medical Officer of Health early, as is required by the Health Act.

Re City Hospital

This building will shortly be completed, and ready to receive contagious diseases and (when finished), being conveniently situated; having a bright and cheerful outlook; heated from a central heating plant; should make it very attractive and suitable for the purposes for which it has been built, and when opened to receive patients, I trust the Board will be able to cope more efficiently with, and prevent the spread of contagious diseases, more easily than heretofore.

A careful and judicious management will be required; a strict supervision and check of the expenditure; as well as a close watch kept on what comes in and what goes out, in order to prevent any unnecessary waste or leak.

As shown by the Vital Statistics Report, given below, a total number of deaths registered in the Galt division for this year is 175, whilst the number for last year was 208, being a decrease of 33, but even that favorable report does not do justice to our city, because I find on further examination that only 152 were actual residents of the city at the time of their deaths, the balance, 20, in number, being non-residents.

As will also be shown with the increase in our population, and the decrease in the number of deaths, the death-rate per thousand, has been reduced from 16.72 to 11.61, which condition I consider a credible showing and will compare favorably with any city in Ontario. Yet notwithstanding this excellent showing, we cannot afford to overlook the fact that the death-rate in the fact that the death-rate in children under two years still remains too high, being more than 1-5 of the total deaths registered in Galt.

Vital Statistics

Population.....	13,092
Deaths (resident).....	152
Death (non-residents).....	20
Death rate per M. residents.....	11.61
Death rate per M. non-residents.....	1.52
Infant Mortality under 2 years.....	38
Infant Mortality per thousand.....	2.90
Births.....	330
Births per thousand rate.....	25.20

Contagious Diseases

Reported	Deaths
1 Typhoid Fever.....	0
8 Smallpox.....	0
40 Scarlet Fever.....	0
30 Measles.....	0
112 Mumps.....	0
23 Chickenpox.....	0
30 Whooping Cough.....	1
1 Polio Myelitis.....	0
2 Erysipelas.....	0
20 Diphtheria.....	2
1 Tuberculosis.....	1

Respectfully submitted,

J. H. RADFORD,
Medical Officer of Health.

Galt, November 1st, 1920.

Dr. J. H. Radford, Medical Officer of Health, Galt, Ont.

Dear Sir.—I beg to submit a certified statement of the number of births and deaths registered at my office in the City of Galt, also cause of death for the twelve months ending October 31st, 1920.

Intestinal obstruction.....	4	Carcinoma.....	8
Stroke.....	2	Cancer.....	3
Croup.....	3	Bronchitis.....	3
Burns.....	3	Strangulation of bowels.....	1
Still born.....	11	Heart failure.....	4
Nephritis.....	5	Haemiphilia.....	2
Bright's Disease.....	4	Old age.....	16
Fracture of skull.....	2	Acute Indigestion.....	4
Myocarditis.....	6	Premature Birth.....	7
Coal Gas Poisoning.....	1	Appendicitis.....	2
Pneumonia.....	10	Apoplexy.....	1
Paralysis.....	2	Capillary Bronchitis.....	1
Laryngitis.....	1	Pernicious Anaemia.....	3
Diphtheria.....	3	Heart Disease.....	6
Influenza and Pneumonia.....	3	Double Pneumonia.....	1
Arterio Sclerosis.....	5	Tuberculosis.....	4
Chronic Bronchitis.....	1	Perforated Duodinal Ulcer.....	1
Grippe.....	1	Injury to leg and body.....	1
Infantile Inertia.....	3	Enophalitis Superior.....	1
Uraemic Convulsions.....	1	Myocardial degeneration.....	1
Malnutrition.....	3	Influenza.....	2
Wound of Scalp.....	1	Broncho-Pneumonia.....	3
Failure of Compensation.....	1	Endocarditis.....	1
Phthisis Pulmonalis.....	1	Dyspepsia.....	1
Diabetis Mellitis.....	3	Rheumatic fever.....	1
Uraemia.....	1	Inanition.....	1
Injury from accident.....	1	Cardiac Failure.....	2
Spina Bifide.....	1	Cholera Infantum.....	2
Cerebral Tumor.....	1	Auto Intoxication.....	1
Pericarditis.....	1	Cerebral Hemorrhage.....	1
Ententes of Colitis.....	1	Aortic Stenasis.....	1
Heart Lesion.....	1	Whooping Cough.....	1
Shock at Confinement.....	1		
		Total Deaths.....	175

Total number of births, 338.

Yours truly,

JOSEPH McCARTNEY,
Division Registrar, Galt, Ont.

HAMILTON

*John W. S. McCullough, Esq., M.D., Chief Officer of Health,
Provincial Board of Health, Toronto, Ont.*

Sir,—As instructed by you I submit herewith a report on the Public and Separate School buildings in the City of Hamilton.

The following schools have been inspected by my direction:

- 14 Separate School buildings (Catholic).
- 1 Separate School building (Seventh Day Adventist).
- 1 Normal School (Provincial Govt.).
- 26 City School buildings.

Total 42 School Buildings.

A separate report has been made on each of the buildings inspected. A copy of each of such reports has been furnished to the Secretaries of the various school boards concerned.

The work of inspection was well in hand before the forms supplied by the Provincial Board of Health had been received.

I hope the forms used in my report will meet with your approval.

I have the honour to be, sir,

Your obedient servant,

Chas. G. Booker, Esq. Mayor.

JAMES ROBERTS,
Medical Officer of Health.

Chairman of the Board, Controller Calvin Davis

Members

Alderman John Tope

Mr. E. Madden

James Roberts, M. O. H.

James Roberts, M.D., Medical Officer of Health

*Laboratory Staff*W. J. Deadman, M.B., Director
Miss W. H. BowmanF. E. Elliott, Technician.
Miss C. L. White.*Division of Food Inspection*

Charles S. Shain, D.V.S., Chief Inspector.

J. T. Arrell, D.V.S., Dairy Farm Inspector.

Geo. Gompf, Assistant Food Inspector.

Division of Sanitary Inspection

W. F. Thornley, Chief Inspector and Smoke Inspector.

L. A. MacDonald

A. C. Shain

George Potter

W. Langhorn

Chas. Robertson

J. Kennedy

John Bull

J. Dow

Division of Public Health Nursing

Miss Florence Torrey

Miss C. G. Harley

Miss A. Boyd

Mrs. A. Haygarth (Social Service)

Mrs. C. H. Jarvis (Tuberculosis)

Dental Clinics

H. A. Thompson, D.D.S., Director of Dental Clinic.

W. G. Manning, D.D.S., Director of Dental Clinic.

Miss May Wilson, Dental Assistant.

Clerks

Miss M. Quinn

Miss E. Horning

Ambulance Driver

Hewitt A. Bowman

Report of the Medical Officer of Health for the Year Ending October 31st., 1920

To His Worship, the Mayor, the Chairman and Members of the
Board of Health for the City of Hamilton.

Gentlemen,—I have the honour to submit for your consideration the report of the Health Department for the year ending October 31st, 1920.

This report embodies the reports of all the sections of the Department, and includes tables and other matter demonstrating the various activities of the Department.

The year under consideration was characterized by some important innovations, and conditions of more than passing moment were met, to which reference will be made.

Tables and Statistics

Population—The population as estimated by the City Assessment Commissioner, to the middle of October, was 114,766.

Births—The number of births registered are shown month by month, in a table of this report and register a total of 3407—being equal to a birth rate of 29.6 per thousand.

Deaths—The number of deaths from all causes occurring amongst the residents of Hamilton, during the year, register 1,744, and are equivalent to an annual death rate of 13.27 per thousand, or excluding deaths from influenza, to a death rate of 12.28 per thousand. A perusal of the tables embodied in this report, will afford information relating to the cause of death.

It is the aim of the Department not only to secure a low mortality rate, but to arrive at conditions which shall ensure a healthy and pleasant city.

The infantile mortality rate or death rate per thousand of living births was 86.3.

It is worthy of note that the deaths from acute gastro-intestinal diseases in infants totalled 74.

The nurses of the Health Department are doing splendid service in advising mothers as to feeding, and the proper care of infants, but owing to other duties and an insufficient staff of nurses, this very important work has been lamentably curtailed.

It is hoped in the near future that the staff of nurses will be increased, so that more complete attention may be given to the important work of visiting every home where an infant arrives—suitable literature left, and where the nurse can be of service, to render such help to the mother that will result in proper care and feeding for the babies.

This service is not only welcome in the homes of the poor, but many possessed of much of this world's goods, gladly avail themselves of the service that a well-trained child welfare nurse of the Health Department is able to administer.

The Health Department, having in view the necessity for a pure milk supply not only for infants, but incidentally for the entire community, and to ensure that the surroundings where milk is prepared for shipment to the city, recognize the importance of such surroundings and conditions being under the supervision of the Health Department although situated outside of the city.

For this purpose, and with these objects in view, the Medical Officer of Health has advocated the appointment of a qualified dairy inspector, whose duties should be to inspect all dairies and places outside of the city, from which milk is obtained for Hamilton citizens.

The faithful services of such an official should result indirectly in a lower infantile mortality rate.

It is recognized that economic conditions are in a measure responsible for a considerable proportion of infantile mortality, and many an infant's life would be saved if the mother only knew what to do, or what not to do on critical occasions.

It is along educational lines that the most effective work in lowering the infantile mortality rate is to be accomplished.

Communicable Diseases

Influenza.—Attention is directed to the two tables recording the number of cases of communicable diseases notified, and the number of deaths resulting from the same, during the year.

It will be noted that out of 120 deaths from Influenza throughout the year, 114 of these deaths occurred in the two months of February and March.

It was in these two months that the Influenza Epidemic was at its height; as will be noted from the table referred to, 3,505 cases were notified to me in the month of February, and 451 cases in March, or 3,956 for the two months, out of a total for the year of 4,008.

The two months above referred to constituted a period of concern bordering on grave anxiety for the Health Department, when notifications for Influenza were being received by hundreds daily.

The Medical Officer of Health and his limited staff were working night and day in dealing with the epidemic, the virulence of which spent itself in March, when 451 cases were notified and only 2 cases in the latter six months of the year.

Emergency Hospitals were opened to receive patients suffering from Influenza, and help afforded from outside the Department, in caring for the sick, for which I fail to find words, to adequately express my appreciation of the noble sacrifice of those who helped in this work of mercy and humanity.

At this juncture I will insert the principal features of a report from Miss E. J. Deyman, Matron of the Emergency Hospital:

"From the opening of Scotts Barracks, Emergency Hospital on February 5th to closing on the 24th of March, a period of 48 days, 426 patients were treated."

"In the female section, 108 ward patients and 92 semi-private patients were treated."

"In the male section 114 ward patients and 118 semi-private patients were treated."

"Fourteen deaths in the female section, and 31 in the male section occurred, or a total of 45 deaths."

"The average age of males who died was 34, and the females 35 years."

"One hundred and fifteen patients had pneumonia of a severe type."

"Four patients were transferred to the City Hospital for operations; these were suffering from pleurisy with effusion."

"Nineteen patients had severe ear complication, and three were kept in bed on account of heart affection."

"When the hospital was closed, the 19 patients still under treatment, were transferred to Mount Hamilton and the City Hospital."

"The greatest number of nurses on duty at any time, were 16 during the day and 14 at night."

"During the last week of February, when the epidemic was at its height, special care was given to the most severe cases."

"It is impossible to speak too highly of the splendid work performed by the volunteer nurses."

"Mrs. Snow, Miss Florence Barker and Miss Bristol gave unstintingly of their services, and at a time when it would have been impossible to cope with the situation, had it not been for their assistance."

"Miss Insole, who had charge of the Information Bureau, helped considerably by arranging the time of admitting patients, and in other useful work. Patients were admitted with as little delay as possible, considering the handicap in our work, owing to ambulances at our disposal never being more than one or two at any time, and these having to carry patients suffering from other infectious diseases to the City and Mountain Hospitals as well."

"The Red Cross Society worked for us as nobly as at any time during the great war, and when our supplies were depleted from time to time, it was a great help to us to be able to call on Mrs. Myles, the President, who always sent us everything we required."

"The supplies that were sent for sick children are worthy of special mention."

"The Moodie Company sent to us in our early days, several dozens of children's sleepers and other articles which were highly appreciated."

"The members of the Gospel Tabernacle were appealed to for aid, when it was found necessary to open two more buildings as Emergency Hospitals."

"Thirty of the members responded to our appeal, and in a very brief space of time we had the two named buildings ready for occupation."

"The Paardeburg Chapter, I.O.D.E. sent us supplies at various times. Among other things, clothing for patients on being discharged from the hospitals, that sent them home in comparative comfort."

"The Young Men's Club of the Central Presbyterian Church; Mrs. Hendrie of Gateside, Mrs. Mullin of James St., S., and Mrs. Manley Morden, and Mrs. Mewburn sent gifts of flowers, broth, ice cream, fruit, eggs, jelly and other things which were highly appreciated by nurses and patients."

Miss Deyman and her devoted band of willing helpers are deserving of the highest admiration possible, of every citizen of Hamilton.

Chickenpox

Two hundred and ninety-five cases of chickenpox were notified, from which no fatalities resulted, as compared with 185 notifications in the previous year.

Chickenpox is mainly important from a diagnostic point of view on account of the possibility of it being mistaken for Smallpox.

Smallpox

Smallpox has been insistent practically throughout the year.

Except for July, notifications have been received in every month, during the year.

In all, 91 cases were reported; these entailed unremitting energy on the part of the staff in keeping the disease under control.

A large percentage of the cases notified were contracted outside of the City, while others have been of such a mild type as to escape recognition, until other cases of a more serious nature have resulted from being in contact with the hitherto unrecognized mild cases.

From this latter point of view a mild case of smallpox is possible of being a greater source of danger to the community than a case of a more serious nature, as generally a greater number of persons are exposed to the former than to the latter.

In every case no conceivable effort is spared in discovering every possible contact, protecting them by vaccination, and keeping them under daily observation until danger from infection is passed.

No deaths have been referred to this disease during the year. This fact may be considered an evidence of the mild nature of the cases generally.

Diphtheria

It will be noted that Diphtheria has been prevalent throughout the year.

Notifications have been received in each month, from 72 in December, to 19 in July; the total number of cases for the year being 596, with 44 deaths being referred to this disease or a case mortality of 73.9 per thousand.

The number of cases of Diphtheria for the previous year totalled 185.

The case mortality of slightly over 7 per cent. should be regarded as satisfactory, although many of the lives lost would probably have been preserved had curative measures been resorted to at the proper time.

In the majority of fatal cases of diphtheria it has been found that the ailment has escaped recognition or been untreated so long that they were in extremis before curative measures were adopted.

When diphtheria is diagnosed in its early stages, and the patient properly and promptly treated with anti-diphtheritic serum, recovery may be regarded as almost certain. On the other hand when such treatment is omitted, or even delayed, a fatal termination may be expected in a very large percentage of cases.

Scarlet Fever

Of this disease 493 cases were reported and 11 deaths, giving a case mortality of 22.3 per thousand.

In the previous year, 292 cases of Scarlet Fever were reported with 5 deaths, and a case mortality rate of 17.1 per thousand.

This disease was most prevalent in January when 103 cases were reported, with 2 deaths.

The numbers were least in August and September, when 9 cases were reported in each of these months.

Two deaths resulted in July and none in August.

Owing to the large number of cases of Scarlet Fever being notified, during the early part of the year, it was decided by the Board of Health acting on my advice to provide sufficient means for the hospitalization of persons suffering from this disease.

On January 17th, the premises known as the Jockey Club Emergency Hospital, at the Corner of Barton and Ottawa Streets, were re-opened to receive Scarlet Fever patients, these premises having previously being equipped and furnished to deal with the Influenza epidemic previously referred to in this report, so that everything was in readiness to deal with the epidemic of Scarlet Fever, at short notice.

Miss Florence Torrey was placed in charge of the hospital and with an efficient staff of 5 nurses, one chef, one orderly and a fireman performed excellent service in dealing with the Scarlet Fever epidemic.

The hospital was in occupation from January 17th to June 1st, or 135 days.

During this period 78 patients were admitted, and represent 3,243 days for patients treated.

Typhoid Fever

The following particulars relating to Typhoid Fever are worthy of note.

Excluding cases brought from localities outside of the city for treatment at the General Hospital of which there were 6, a total of 59 notifications have been received during the year.

In 35 of these cases the disease was contracted out of the city, while the persons so suffering were temporarily residing, or on visits to friends, in other municipalities.

So that not more than 24 cases were contracted in the city, or the source of infection had not been definitely determined.

Forty-seven or 72.3 per cent. of the cases reported were notified during September and October, or in the period when a large percentage of persons on their annual vacation, are returning to their homes.

Measles

Measles were very prevalent during the months of April, May, June and July; 1,655 cases being reported during these four months, out of a total for the year of 1,846.

Ten deaths were referred to measles, showing a mortality rate of 5.4 per thousand.

Whooping Cough

During the year 315 cases of Whooping Cough were notified, and 11 deaths occurred from this complaint, or a case mortality of 34.9 per thousand.

The Department directs parents as to the necessity of properly isolating their children, when affected with this disease, and to be careful not to expose other children to infection.

Such precautions however, are frequently not observed, because many parents fail to realize the gravity of this disease and sometimes only regard it as a severe cold.

The length of time some cases will last, affords an excuse for the parents to become lax in keeping the patient properly isolated.

Sanitary Inspection

The Sanitary Inspection of the City has been more thorough and systematic than in former years.

This has been rendered possible by the appointment of additional inspectors.

This important work is by no means as complete as could be desired, for there are approximately 22,000 homes in the City of Hamilton.

For inspection purposes the City has been divided into five districts with an inspector allotted to each district, with approximately 4,500 houses in each.

It will be seen that for an inspector to call at every house in his district, he will be required to make 30 calls per day, in order that his district be inspected once every six months.

At certain periods of the year, particularly after the spring thaw has set in, the yards and surroundings at least of every house should be inspected, for in a very large number of cases, insufficient care, often amounting to gross carelessness, is exercised in preventing the occurrence of nuisances about the dwelling, when the ground is covered with Winter's snow.

Animal and vegetable matter; old rags; papers; tins; bottles and other refuse, instead of being deposited in proper receptacles are indiscriminately thrown into the yard, or on an adjacent vacant lot.

This conglomerate mass of refuse is not particularly noticeable when the ground is covered with snow, but as soon as the thaw sets in, it becomes very much in evidence.

It becomes apparent that a district inspector is required to attend strictly to the needs of his district.

It has been the experience of all inspectors during the past year that such attention has been impossible owing to other demands upon his time.

Cases of Smallpox have occurred in the city at frequent intervals, some of them necessitating the finding out and keeping under observation, large numbers of contacts, and other attendant work which every case entails.

This has necessitated three out of the five district inspectors being away from their districts for various periods, and the work of inspection consequently neglected.

There are a large number of houses and premises in the city which only require a very occasional visit from an inspector. There are others, however, where the inspector is perforce a frequent visitor.

From these observations it will be seen that the staff of inspectors is much lower than the needs of the City demand.

The report shows in tabulated form, the description and number of premises inspected during the year.

It also records the character and number of sanitary defects and insanitary conditions discovered during the course of inspection; the removal or abatement of such would of necessity entail improved conditions as viewed from a sanitary standpoint, not only at the actual premises where such adverse conditions existed, but also, in the aggregate for the community in general.

In addition to the tables and other statistics, attention is directed to the reports from other sections of the Department.

Nurse Dealing With Tuberculosis

The report from Mrs. Jarvis, the nurse, engaged in combating tuberculosis is very interesting and a record of good work accomplished.

The past year has been one of marked progress in the fight against tuberculosis.

Social Service

This branch of the Health Department work is under the care of Mrs. Haygarth, whose report is a fine record of good work accomplished.

Health Nurses

The reports of the Health Nurses whose work is mostly in evidence in homes where infectious diseases have occurred, are also of considerable interest.

There is an ever increasing demand for the services of the Public Health Nurse, not only in homes visited by disease, but where instruction and advice in matters relating to health conditions can be afforded.

Lack of space forbids my commenting on the excellent work accomplished at the Laboratory. The Dental Clinics and other branches of Health Department work and reports from the same are submitted.

The Food and Dairy Division Report is also a record of work entailing technical knowledge of a high order, and finished accomplishment.

The work of this Division has in common with other Divisions of the Health Department, been severely handicapped during the year, owing to the necessity of the inspectors of the division to discard much of their regular work, in combating numerous occurrences of smallpox and other diseases.

Special Reports

Many subjects of considerable importance to the community have been dealt with during the year, either in special reports to the Board of Health by the Chief Sanitary Inspector, or myself.

Some of these have been disposed of, while others are still under consideration and may be referred to as follows:—

Housing Conditions

In common with nearly all cities in Canada, housing conditions afford occasion for anxious consideration.

It is an established fact that practically no houses worthy of occupation are available for the needs of people with slender incomes, in any part of the city. Neither is there any apparent improvement visible in the situation.

This condition is due to the continued high cost of building material, and of labor.

An attempt to solve the problem, in a manner that is likely to prove a menace to the moral and physical health of the community, has been made in one quarter of the city, by the erection of single room dwellings.

At the close of the year several of these single room structures existed; one was the home of a man, his wife and 6 children, ranging from 3 to 14 years of age, with no sanitary convenience or water supply. Such a case needs no comment, as conditions can be better imagined than described.

It is recommended that no permit be granted for a house, to be used as a dwelling, for less than three rooms.

Conditions in Factories and Workshops

Some attention has been paid by the Health Department to sanitation in factories and workshops. Considerable improvement in working conditions have been secured in several instances.

It is hoped however, that better attention to this important matter will be possible in the ensuing year.

Health Centre

It is gratifying to note that owing to the hearty co-operation of the Hamilton Health Association with the City Health Department, for at least the last two years, arrangements have now matured whereby the Board of Health assumes the responsibility for the dispensary work of the Association.

This dispensary work will be conducted in the basement of the premises on Main Street formerly known as the Old Library building, as soon as the necessary alterations have been effected, and equipment furnished.

The offices of the Medical Officer of Health and his staff will also be situated in this building, when the necessary works are executed to permit the transfer of the City Health Department to the first floor of the building.

Dental and other clinics, along the various lines of preventive medicine, will also be established at these premises when circumstances permit.

It is hoped this centre will develop into a source of immense benefit to the citizens in general.

I desire to express my cordial appreciation to the Hamilton Health Association, the Medical Society, the Board of Trade, the Chamber of Commerce, the Rotary Club, the Independent Labour Party, the Daughters of the Empire, and other organizations, together with the large number of individuals, who have so nobly interested themselves in the establishment of a Health Centre, and who have assisted in bringing the matter to such a successful start.

An Appreciation

In concluding my report for 1920, I wish to express my thanks to the Chairman and members of the Board of Health, who have at all times loyally supported me in all matters brought before the Board involving the interests of the health of the community.

I have the honour to be, gentlemen,

Your obedient servant,

JAMES ROBERTS,

Medical Officer of Health.

On Smoke Nuisances: Their Abatement and Prevention, For the Four Months, Ending October 31, 1920

James Roberts, Esq., M.D., Medical Officer of Health, City of Hamilton, Ont.

Sir,—I have the honour of submitting the following report on Smoke Nuisances, their abatement and prevention for the four months, ending October 31, 1920.

I commenced my duties as Chief Sanitary Inspector and Smoke Inspector for the City of Hamilton, under you on July 5th, 1920, so that my report on the smoke situation in the City of Hamilton will of necessity be from that date only.

At the meeting of the Board of Health for the month of August, I submitted a report on Smoke Nuisances, in the City of Hamilton, and stating in brief the remedial measures which should be adopted, if the fouling of the atmosphere by objectionable smoke were to be prevented.

Since that time considerable progress has been made in smoke abatement, and in measures being adopted, which will eventually result in the further improvement in the smoke situation.

During the four months recorded, action has been taken as follows:—

Observations of chimneys and smoke stacks.....	68
Inspections of boiler houses, power plants, boiler equipment, fuel supply and other matter in relation to smoke abatement or prevention.....	90
Total of Observations and Inspections.....	158

Notices Served

Statutory Notices were served for 45 premises.....	45
In eleven instances the owners of premises were warned or advised, as to remedial measures to be adopted in connection with smoke omissions from their premises, although not actually served with Statutory Notices.....	11
For the purpose of record in these cases, such warnings or admonitions might be classified as informal notices, and result with the Statutory Notices in a total of fifty-six Notices.....	56
Actual Results have been obtained as follows:—	
Mechanical Stokers of different types actually installed, or in course of installation, and will be in actual operation before the close of the year 1920.....	6
Premises where changes in fuel and methods of firing while particulars of the relative values of various types of mechanical stokers or other smoke preventing equipment are being enquired into.....	7
Steam jets, with and without heated air, and other devices known as smoke consumers fitted to boilers.....	5
Premises where the use of bituminous coal (or what is generally described in Hamilton, as American soft coal, and which is responsible for at least 95% of the nuisance occasioned by objectionable smoke), has been discontinued as fuel, and replaced by a non-objectionable smoke evolving fuel.....	11
Total of premises affected.....	29

In practically every other case investigated, it has been found that large supplies of bituminous coal have been stored in the coal bunkers, or contracted for, so that deliveries of same are to be continuous during the winter.

In a large percentage of the premises so affected, the boilers are not adapted to the equipment of smoke preventing or consuming devices, and the owners are unable to cancel or change their contracts for the substitution of a fuel that will not evolve objectionable smoke.

In all of these cases the firemen have been instructed as to the methods of firing with bituminous coal, so as to occasion the minimum of nuisance from the chimneys or smoke stacks of the premises involved.

In addition to these precautions, some of the latter have obtained supplies of anthracite screenings or small grades of anthracite coal, and are using the same in connection with the bituminous coal as a means to further reduce the seriousness of the nuisance.

In several instances satisfactory results have been obtained from this latter expedient, while in others, benefits have been less pronounced.

It is worthy of note, that except where mechanical stokers are in use, there is no type of boiler existing in the City of Hamilton where either semi-bituminous or semi-anthracite coal could not be used with distinct advantage from every point of view, in preference to bituminous or high volatile coal.

This most important fact should be made known, not only to every coal dealer in the City of Hamilton, but to every person responsible for the procuring of coal for manufacturing and heating purposes, so that the errors of past years may be corrected in the future.

It must be remembered that a smoke laden atmosphere is an unhealthy atmosphere, and persons suffering from diseases of the respiratory organs are particularly affected by such conditions.

Smoke means not only dirt, but it also means waste—waste of fuel, waste of money.

It is practically impossible to estimate the actual loss, in cash alone, being sustained at the close of the year, when numerous chimneys and smoke stacks are discharging volumes of fuel in the form of unconsumed carbon, which we call smoke, into the atmosphere. In some instances it is not unreasonable to estimate that at least 25% of the fuel is being wasted by this means alone.

It will be seen therefore that no hardship is inflicted on any person required by the Health Department to abate a smoke nuisance. On the contrary any money spent on a smoke preventing, or even a smoke consuming equipment may in every instance be regarded as a good investment.

Let it also be remembered that smoke is not only unhealthy, dirty, and offensive, but it is also destructive. Considerable damage is done to every building in the City, more or less, by smoke emissions.

The carbon affects painted surfaces; the sulphur compounds positively destroy metals and are also very destructive to stone, brick and concrete buildings.

If a careful examination be made of any building in the city, the destructive work of the various elements found in smoke will be readily detected.

Some of these points may not have any considerable bearing from a sanitary point of view, but must be considered worthy of attention, if the best results of smoke inspection are to be attained.

The methods of dealing with smoke prevention in the City during the last four months of the year have been largely educational or advisory.

It is gratifying to note that the effect has been responsive in almost every instance.

Notices have invariably followed observation and inspections. On receipt of such notice, the persons responsible, have in nearly all cases consulted your Inspector as to the possibility of remedial measures being applied.

Although from the reasons already mentioned, the smoke nuisance is greatly in evidence in the city, up to the present, magisterial proceedings have not been considered advisable.

It should be remembered however that owing to lack of knowledge or of foresight in preventing smoke nuisances in the past, improved conditions will be required in the future.

And to this end I would respectfully recommend as follows:—

(1) The Coal Dealers in the City be advised to secure large and sufficient supplies of Pocahontas or other semi-bituminous or semi-anthracite coal for their customers, at as early a date as possible, to replace bituminous or smoke evolving fuel, for low pressure boilers, or where it is not expedient or possible to provide smoke preventing equipment.

(2) That it be made known by letter, by advertisement, or through the Press, that although the abatement or prevention of smoke nuisances have not been rigidly enforced in the past, that persons offending along these lines in the future, will after due Notice from the Medical Officer of Health be prosecuted under the Public Health Act, of Ontario.

(3) That all Public Bodies, including the City Council, the Board of Education, the Provincial Government, and others that the Smoke Preventing Clauses of the Public Health Act are to be observed.

(4) Notify the Railway Companies that smoke emissions from their locomotive engines and buildings, will not be permitted in the City of Hamilton.

Failing the adoption of remedial measures, that action will be taken that will result in the electrification of all yards, stations, tracks and terminals in the City of Hamilton.

I have the honour to be, sir,

Your obedient servant,

W. F. THORNLEY,

Chief Sanitary Inspector and
Smoke Inspector.

Division of Sanitary Inspection

Report for the Year Ending October 31st, 1920, City of Hamilton

Complaints received and attended to.....	1,142
Statutory Notices Served.....	1,337
Verbal or Informal Notices Served.....	1,465
Total of Notices.....	2,802

Premises Inspected

Dwelling Houses.....	4,410
Tenements and Apartment Houses.....	2,028
Hotels, Lodging, Boarding, and Rooming Houses.....	220
Workshops, Factories and Offices.....	232
Restaurants and Stores.....	458
Stables.....	497
Laundries.....	242
Second Hand Stores and Junk Yards.....	78
Yards, Sheds, Areas, Outbuildings, and Alleyways.....	3,248
Vacant Lots.....	160
Schools and Public Buildings.....	110
Other Premises.....	953
Inspections for Communicable Diseases.....	16,201
No. of Inspections.....	22,837
No. of Re-Inspections.....	4,941
Total of Inspections and Re-Inspections.....	27,778

*Defects and Nuisances Discovered and Removed or Abated**Plumbing*

Defective or Choked Drains.....	279
Defective or Choked Sinks, Urinals or Washbasins.....	165
Defective Soil Pipes and Other Sanitary Fittings.....	220
Defective Ventilation of Plumbing.....	52
Frozen Plumbing or Water Pipes.....	1
Defective Eave Troughs and Leaders.....	347
Insufficient or Improper Plumbing.....	135
New Plumbing or Water Services Installed.....	465
Total of Plumbing Defects.....	1,664

Particulars of Smoke Nuisances

Observations of Chimneys and Smoke Stacks.....	56
Inspections of Boiler Rooms, Power Houses and Equipment.....	79
Total of Observations and Inspections.....	135
Statutory or Informal Notices.....	51

Other Nuisances or Defects

Dirty Yards, Courts, Sheds, Areas and Alleyways.....	1,089
Dirty Walls, Ceilings and Floors of Dwellings and Other Premises.....	1,456
Inadequate Natural Light.....	29
Insufficient Ventilation of Premises.....	38
Keeping Animals in or near Dwellings.....	279
Lack of Proper Receptacles for Manure, Garbage and other Waste.....	196
Accumulations of Manure and Other Refuse.....	592
Defective and Insanitary Cellars or Basements.....	230
Dilapidated and Generally Insanitary Dwellings or other Premises.....	483
Insanitary Conditions in Factories, Offices or Stores.....	62
Insanitary Conditions in Halls and Theatres.....	11
Insanitary Conditions in Schools or Public Buildings.....	69
Overcrowding.....	17
Defective Chimneys.....	22
Defective Roofs.....	175
Defective Gas Stoves and Fittings.....	13
Defective Furnaces or Stoves.....	23
Earth Closets or Privies.....	254
Miscellaneous.....	929
Total.....	5,967
Plumbing Defects Brought Forward.....	1,664
Total of All Defects Remedied.....	7,631

Cases Reported for Prosecution.....	8
Drains Tested:—	
Positive.....	27
Negative.....	11
Total.....	38
Positive Percentage.....	71.1

W. F. THORNLEY,

Chief Sanitary Inspector.

Tuberculosis

Report of Visiting Nurse, Dealing with Tuberculosis

James Roberts, Esq., M.D., Medical Officer of Health.

Sir,—Below please find report from the down town dispensary of the Sanatorium, for the year ending September 30th, 1920.

In reviewing the work at the dispensary there are few outstanding features differing from past years. There has been a slight diminution in the number of patients coming for examination, owing partly, I believe, to the establishment of the new clinics for sick children and the work being done in the homes from the D.S.C.R.

Statistics inform us of a material reduction in advanced cases of tuberculosis during the past years, even with the predisposing effects of increased cost of living and a tendency to congestion owing to the shortage of houses. This cannot be considered otherwise than a result of more efficient treatment and control.

In the beginning of the year the dispensary was again closed for several weeks as a protection against the spread of influenza. Only cases from out of town, or those in special need of attention were examined.

During the year 1,432 examinations were made by physicians in charge; 534 new patients were registered. From the new cases examined 126 were found to have active pulmonary tuberculosis and were invariably recommended for Sanatorium treatment.

If people could only realize the importance of treatment in the early stages of tuberculosis not one would hesitate in taking advantage of the wonderful opportunity for treatment and instruction given at the Mountain Sanatorium. Patients with an open mind to learn and a willingness to receive help are in most cases not only cured themselves, but extend the benefit of instruction and training received to their own homes, and their children, who in many cases have already shown signs of infection, stand a much greater chance of growing into healthy men and women.

Unfortunately many fail to "take the cure" mostly through a lack of understanding of the disease itself, for if they did understand few would allow business or cares of the home, no matter how important it might seem at the present, to interfere with the all important duty of regaining one's health before it is too late.

From the new cases examined 63 were incipient, 47 moderately advanced and eighteen far advanced cases.

203 suspicious or doubtful cases have been kept under observation during the year, either through coming to the dispensary at stated intervals or by the visiting nurse in their own homes.

Sources of reference to the dispensary have been as follows:—Physicians, city, 209; county 28; the remainder coming of their own volition or on advice of friends.

In addition to this number 79 open cases (positive sputum) have been reported from the City Laboratory.

Our different nationalities have been Canadian 293, English 142, Scotch 10, Irish 8, American 12, Italian, Russian, Chinese and others, number 67. Considering our foreign population there is very little doubt that incipient or even moderately advanced cases are not being located.

215 children of 14 years and under have been examined this year at the dispensary. The majority of these little ones, although non tuberculosis, show an undernourished condition, pale, under standard weight, nervous and irritable. Visiting the home frequently reveals the fact of injudicious feeding, milk, cereals, and vegetables almost entirely left out; late hours, and poor ventilation.

One mother confided the fact to the visiting nurse that she could not understand why her little Mary took sick every winter, as soon as cold weather set in. This home maker did not ventilate the sleeping rooms at all. Her husband is an ex-san patient. This particular case shows how difficult it is to change habits already fixed.

This fact, in spite of the educational campaign continually going on, is evident by the number of storm windows one sees while walking along the street.

Nourishing food, 8 to 10 hours sleep, sunshine, fresh air and cleanliness are preventive measures for this disease, at least.

1548 visits were made to the homes; of these 377 were new calls.

Houses in Hamilton, as every one knows, have been scarce and there has been a tendency to overcrowding. Our Local Board of Health has done everything possible to maintain a high standard of sanitation, but it is the people themselves who must make the homes.

Adverse conditions found, are mostly resulting from the lack of the all important instinct of cleanliness and order.

203 miscellaneous calls were made during the year.

Patients requiring medicine or supplies numbered 562.

The junior members of the Hamilton Health Association have been as usual ever present help in time of trouble, contributing over 7,000 quarts of milk to families where one or often two members were in need of a little extra, apart from what the parents could afford.

\$120 was drawn from the Miss Doolittle fund, \$46 of which was spent in buying milk and \$49.20 for eggs; the remainder buying fruit and luxuries for patients confined to bed.

We also wish to thank those who have so thoughtfully contributed reading matter to the dispensary during the year.

Respectfully submitted,

MRS. C. H. JARVIS.

To James Roberts, Esq., M.D., Medical Officer of Health.

Sir,—Below please find the report on work accomplished in connection with the Social Service branch of the Health Department, for the six months ending October 31st, 1920. This branch of the Department was inaugurated in May of 1920, and of necessity this report only deals with the work over a period of six months.

The opening of this branch of the Department is evidence of the progress made toward solving the Venereal Disease problem. For many years past the patient took treatment when he chose, ignoring any precautions against the exposure of others; and the physician was accountable to no one for the careless patient. The Venereal Diseases were spoken of in hushed tones and were considered as different from other diseases. After the war or I should say, out of the war has come an entirely new conception of these diseases. Today the venereal diseases go with the other diseases to make up the whole public health problem. We are told that, medically we are armed to the teeth against these diseases and are just awaiting the day of human enlightenment and that what public knowledge and sentiment have done to lessen the tuberculosis scourge, can be done to syphilis and gonorrhea.

In response to the appeal of the Provincial Board a clinic was established at the General Hospital, where the best of treatment is available to the many who need it, but are unable to pay for the long treatment necessary for the cure of syphilis and gonorrhea.

During the six months, 106 persons were examined and of these 92 were placed under treatment. Ten children, ranging from 2 to 16 years were placed under treatment.

Four hundred and sixty-four visits were made to the homes in connection with Venereal Diseases.

The social service nurse has a great opportunity for work in the home. It is not always possible for the nurse to visit the home on account of the unwillingness of the infected person. However, this unwillingness can often be overcome when the patient is given a proper understanding of the disease. Of the younger patients, the great majority received no sex instruction at home.

One case of chancroid was reported, 303 cases of syphilis and 135 positive cases of gonorrhea. These do not include the many cases treated on clinical evidence.

Fifteen cases are taking treatment under the Venereal Disease Prevention Act, at the present time.

Two hundred and thirty-eight visits were made for the communicable disease branch of the Department.

I have the honour to be, sir,

Your obedient servant,

AGNES HAYGARTH,

Social Service Nurse.

City of Hamilton, Health Department, July 29th, 1920.

Report on a Special Sanitary Survey of Homeside, Recently Annexed to the City, Submitted to the Board of Health, for the Month of July, 1920

To James Roberts, Esq., M.D., Medical Officer of Health.

Sir,—I beg to report that as instructed by you, and as required by the Provincial Board of Health, a survey of the above described portion of your City has been made by Inspector L. A. MacDonald and myself, with the view of determining as to the necessity for sewer and water mains in that locality.

The survey was commenced on July 13th, by making a house to house visitation, and ascertaining names of owners and occupants, number of occupants, ages, water supply and sanitary conveniences provided.

After obtaining this information on several streets, it was found that the City Assessors' Department was also making a survey and obtaining all information as to owners, occupants, ages of children and other matter.

It was considered unnecessary to duplicate this information and the survey was confined to the number of houses, and sanitary conveniences with available water supply.

The sanitary conveniences consisted invariably of the outside earth closet, of the box pattern.

This is a very unsatisfactory form of closet: it is liable to become a fruitful source for the spread of infection from certain diseases, and should only be permitted to exist as a temporary measure.

The water supply differs materially in some directions. At thirteen houses on Kenilworth Ave., it was found that water had been laid on the premises from city water mains on the west side of the street. Some of the occupants carried water in pails from city service pipes, over long and short distances; some obtained their water from either their own or their neighbours' wells; these were invariably shallow wells, and liable to the possibility of contamination from several sources; some of the residents obtained their water from Fairfield School, many of these having to traverse several hundreds of yards for this necessary commodity, while others obtained it from various sources.

Number of premises on the various streets for which sewers and water mains are required, are as follows:

Name of Street	No. of Premises on Streets
Main Street.....	18
Park Row Ave.....	7
Province St.....	16
Graham Ave.....	6
Houghton Ave.....	8
Wexford Ave.....	9
Huxley Ave.....	11
Tuxedo Ave.....	4
Crosswaite Ave.....	22
Garside Ave.....	13
Barons Ave.....	18
Cope St.....	49
Tragina Ave.....	48
Weir Ave.....	40
Fairfield Ave.....	40
Paling Ave.....	33
Strathearn Ave.....	9
Roxborough Ave.....	2
Brittania Ave.....	23
Archibald Ave.....	11
Hope Ave.....	48
Albany Ave.....	34
Alberta Ave.....	31
Harmony Ave.....	48
Division Ave.....	13
Bedford Ave.....	12
Barton Ave.....	16
Lloyd Ave.....	14
Vansitmart Ave.....	15
Harrison Ave.....	17
Dunbar Ave.....	2
Merchison Ave.....	2
Kenilworth Ave. (For water and sewer).....	10

Kenilworth Ave. (Sewers only).....	13
Rosseveltd Ave.....	4
Conrad Ave.....	3
Beach Rd.....	6
<hr/>	
Total for sewer and water.....	662
Total for sewer only.....	13
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Gross Total.....	675

The City of Hamilton will of necessity develop in the direction under consideration, and while a fair proportion of the locality is at present vacant, this condition should not continue for any reasonable period.

Even should there be no development as indicated, I consider from a sanitary point of view that sewers and water mains should be provided in all the above mentioned streets, with the least possible delay.

I have the honour to be, Sir,

Your obedient servant,

W. F. THORNLEY,
Chief Sanitary Inspector.

City of Hamilton, Health Department.

To James Roberts, Esq., M.D., Medical Officer of Health.

Sir,—I submit for your consideration the report on Food and Dairy Inspection for the year ending Oct. 31, 1920, as follows:—

TOTAL NUMBER OF INSPECTIONS.....	4,692
Inspection of Central Market.....	153
Inspection of Butcher Shops.....	198
Inspection of Slaughter Houses.....	4
Inspection of Hide Houses.....	8
Inspection of Fruit and Vegetable Stores.....	81
Inspection of Butter and Egg Stores.....	14
Inspection of Chinese Tea Stores.....	23
Inspection of Grocery Stores.....	46
Inspection of Ice Cream and Confectionery Stores.....	42
Inspection of Ice Cream Cone Factories.....	32
Inspection of Ice Cream Factories.....	4
Inspection of Candy Kitchens.....	47
Inspection of Bottling Works.....	4
Inspection of Restaurants and Lunch Rooms.....	462
Inspection of Bake Shops.....	163
Inspection of Bake Wagons.....	3
Inspection of Hotels.....	15
Inspection of Cheese Factory.....	1
Inspection of Fish Stores.....	4
Inspection of Offal Wagons.....	1
Inspection of Laundries.....	2
Inspection of Junk Yards.....	1
Inspection of Dairy Farms.....	27
Inspection of City Dairies.....	386
Inspection of Milk Depots.....	63
Inspection of Milk Wagons.....	121
Number inspections for butcher license.....	48
Number inspections for milk license.....	75
Number inspections for ice cream pedlers' license.....	8
Number milk licenses refused.....	47
Number inspections re milk sold without license.....	46
Number milk samples tested, chemical.....	118
Number milk samples tested, bacterial.....	147
Number cream samples tested.....	8
Number milk temperatures taken.....	33
Number sediment tests made of milk.....	17

Number milk dairies closed on account of disease.....	2
Number summons issued.....	14
Attendance at Police Court.....	21
Number times weighing poultry.....	6
Number times weighing butter.....	12
Number times weighing bread.....	14
Number complaints re food investigated.....	17
Miscellaneous inspections in connection with various communicable diseases.....	1,682

Notices Were Served as Follows

Notices to clean butcher shops.....	44
Notices to clean fruit and vegetable stores.....	9
Notices to clean grocery stores.....	23
Notices to clean ice cream cabinets.....	12
Notices to clean ice cream cone factories.....	13
Notices to clean candy kitchens.....	17
Notices to clean restaurants and lunch rooms.....	316
Notices to clean refrigerators.....	37
Notices to clean Chinese tea stores.....	10
Notices to clean yards.....	2
Notices to clean bake shops.....	66
Notices to clean milk dairies.....	70
Notices to remove water closets from food store-room.....	1
Notices to whitewash walls.....	2
Notices to cover and protect foodstuff.....	54
Notices to screen door and windows (restaurants and dairies).....	38
Notices to discontinue sale of milk.....	9
Notices to take out milk license.....	4
Notices to build milk house.....	9
Notices to limewash cow stables.....	11
Notices re dairy farms storing ice.....	350
Notices re high bacterial count of milk.....	4
Notices re milk tests.....	9
Notices re high temperature of milk.....	37

Seizures

No. lbs. veal.....	187
No. lbs. pork.....	117
No. lbs. beef.....	1,862
No. lbs. geese.....	195
No. lbs. chickens.....	10
No. lbs. fish.....	50
No. lbs. tomatoes.....	1,000
No. dozen eggs.....	90
No. baskets grapes.....	35
No. baskets apples.....	5

I have the honour to be,

Your obedient servant,

C. SHAIN,
Chief Inspector.

Hamilton, Ontario.

To James Roberts, Esq., M.D., Medical Officer of Health.

Report of the Dental Clinics

Sir,—During the past year over fourteen hundred children have been referred, by the school nurses, to the Dental Clinics for treatment. Of these, ten hundred and eighty-two received complete attention and were dismissed. The report shows in detail just what work has been done.

The annual inspection of the public schools but recently completed, has been very gratifying showing as it does, a great improvement over last year.

Of over seventeen thousand children examined, approximately seventy-five per cent. are dentally defective, while last year ninety per cent. required treatment.

While this number is still alarmingly great, it shows great progress and it is to be hoped our board may see fit to provide further facilities in the near future, to further the good work.

Below is submitted a detailed report of the year's work:—

Total treatments.....	3,044
Total extractions.....	2,468
Fillings:—	
Amalgam (silver).....	434
Petroid Cement.....	399
Copper Cement.....	986
Enamel.....	137
Temporary Fillings.....	19
Gutta Percha.....	561
Miscellaneous Operations.....	306
Silver Nitrate.....	2,202
New Cases.....	1,401
Completed Cases.....	1,082
Total Examinations.....	17,469

Respectfully submitted,

W. G. MANNING, D.D.S.

H. A. THOMPSON, D.D.S.

Record of Visits by the Public Health Nurses for the Year

Number visits re Measles.....	360
Number visits re Diphtheria.....	204
Number visits re Scarlet Fever.....	162
Number visits re Mumps.....	174
Number visits re Chickenpox.....	157
Number visits re Whooping Cough.....	69
Number visits re Influenza.....	27
Number visits re Impetigo and Scabies.....	70
Number visits re Tuberculosis.....	14
Number visits re Typhoid Fever.....	8
Number visits re Smallpox and vaccinations.....	119
Number visits re Scarlet Fever release.....	121
Number visits re Baby Welfare Work.....	196
Number visits re Diphtheria cultures taken.....	630
Number visits re Quarantine and Isolation.....	142
Number visits to homes.....	181
Number miscellaneous calls.....	205
Number hours assisting at vaccinations.....	93
Number visits re insanitary conditions.....	41
	<hr/>
	2,880

Summary of Work Done by the Inspectors in Quarantine and Isolation

Houses placarded for Scarlet Fever.....	246
Houses placarded for Diphtheria.....	182
Houses placarded for Measles.....	1,478
Houses placarded for Smallpox.....	62
Houses placarded for Poliomyelitis.....	1
Houses placarded for Cerebro-spinal meningitis.....	2
Houses disinfected for Scarlet Fever patients sent to hospital.....	204
Houses disinfected for Diphtheria patients, sent to hospital.....	344
Houses disinfected for Smallpox patients, sent to hospital.....	24
Houses disinfected for Cerebro-spinal meningitis patients, sent to hospital.....	2
Houses disinfected for Diphtheria—cards removed.....	160
Houses disinfected for Scarlet Fever—cards removed.....	228

Houses disinfected for Smallpox—cards removed.....	41
Houses disinfected for Cerebro-spinal meningitis—cards removed.....	2
Houses disinfected for Tuberculosis.....	44
Houses disinfected for Erysipelas.....	7
Houses disinfected for Typhoid Fever.....	9
Miscellaneous disinfections.....	16
Measles cards removed.....	1,134
Visits re quarantine and isolation.....	1,416

Report of the Laboratory

Dr. James Roberts, Medical Officer of Health, Hamilton, Ont.

Dear Sir,—I have the honour to submit the report of the Laboratory for the year ending October 31st, 1920. There has been a marked increase in the amount of work done and it is hoped that more and more, the doctors of the City, will make use of the Laboratory facilities, placed at their disposal. As explained in a circular issued during the year, we are now undertaking to mail to each doctor, reports of the specimen submitted for examination, as soon as it is finished, while everything of an urgent character is immediately transmitted by telephone.

During the year the work of the Laboratory has been extended by doing Wassermann Re-Actions for the City, free of charge, thus obviating the necessity of sending these specimens to the Provincial Laboratory, also an increased number of Bacteriological Examinations of milk have been made, as well as the routine examination of the excreta of cases of Typhoid Fever, in order to detect carriers. It is hoped to constantly extend the scope of the work, and to give a laboratory service which is the equal of any.

The attached report show the number of specimens examined during the year. It entails a great amount of work not only in making the necessary examinations, but in the preparation and standardization of media-reagents, etc., as well as in keeping records and getting out reports.

I am also submitting a statement showing the net cost of the outfits, supplied free by the Laboratory. It is hoped that the fullest use will be made of these outfits, but it is also to be hoped that they will be used only for the purpose for which they are intended, thus saving the city a considerable amount of expense.

	Positive	Negative	Total
Wassermann Reaction.....	383	1,216	1,599
Smears for G.C.....	122	977	1,099
Diphtheria cultures.....	1,040	7,221	8,261
Sputum for T. B.....	102	577	659
Widal Reactions.....	53	141	194
Stools and Urines for B. Typhosus.....	1	40	41
Milk samples.....			147
Water.....			320
TOTAL.....			13,320

Respectfully submitted,

WM. J. DEADMAN,

Director.

Vital Statistics

	1914		1919		1920	
	Births	Deaths	Births	Deaths	Births	Deaths
November.....	247	107	200	322	251	109
December.....	210	99	220	218	291	142
January.....	261	127	190	109	301	121
February.....	207	96	208	113	315	233
March.....	284	128	247	171	275	220
April.....	237	131	241	157	317	133
May.....	247	118	238	117	313	149
June.....	252	86	195	93	309	128
July.....	252	95	195	91	275	141
August.....	263	94	151	95	274	119
September.....	234	110	239	101	246	126
October.....	227	93	197	114	240	123
	2,921	1,284	2,521	1,701	3,407	1,744

Comparative Table

Showing number of deaths, within the following age periods:—

	1913-1914	1918-1919	1919-1920
Under 1 year.....	459	416	496
From 1 to 5 years.....	52	76	106
From 5 to 10 years.....	31	66	70
From 10 to 20 years.....	36	73	62
From 20 to 30 years.....	70	200	99
From 30 to 40 years.....	85	198	122
From 40 to 50 years.....	111	128	124
From 50 to 60 years.....	105	145	173
From 60 to 70 years.....	128	153	197
From 70 to 80 years.....	127	151	180
From 80 to 90 years.....	72	79	93
From 90 to 100 years.....	8	16	21
Ages not given.....	0	0	1
	1,284	1,701	1,744

*Deaths**1. General Diseases.*

Influenza.....	1	332	120
Measles.....	7	.....	10
Typhoid Fever.....	9	2	9
Whooping Cough.....	19	1	11
Scarlet Fever.....	.....	5	11
Diphtheria.....	16	14	44
Erysipelas.....	4	3	2
Tetanus.....	3	.....	1
Epidemic Anterior Polio-myelitis.....	.....	.....	3
Sleeping Sickness.....	.....	.....	2
	59	357	213

Tuberculosis—

Lungs.....	89	46	44
Meninges.....	1	9	5
Intestines.....	2	1	2
Peritoneum.....	1	.....	.....
Spine.....	1	.....	.....
Jaw.....	1	.....	.....
Kidney.....	.....	4	.....
Larynx.....	.....	.....	1
Joints.....	.....	.....	2
	95	60	54

Carcinoma—

Stomach and Liver.....	23	33	37
Abdominal.....	3	.....	.....
Intestines.....	9	8	20
Breast.....	3	9	6
Uterus.....	4	10	8
Neck.....	1	3	.....
Jaw.....	1	.....	.....
Kidney.....	1	.....	.....
Bladder.....	2	6	10
Heart.....	1	.....	.....
Tongue.....	1	.....	1
Rectum.....	1	5	7
Throat.....	.....	4	4
Lip.....	.....	6	1
Ovary.....	.....	2	.....
Cerebral.....	.....	.....	1
Pancreas.....	.....	.....	2
Not Specified.....	18	13	2
	68	99	99

Sarcoma—

Thoracic Cavity.....	2	.....	1
Intestines.....	1	.....	.....
Abdominal.....	1	.....	.....
Bladder.....	.....	.....	4
Liver.....	.....	.....	1
Brain.....	.....	1	1
Not Specified.....	.....	.....	1
	4	1	9
Naevus Growth.....	1	.....	.....
Rheumatism.....	3	3	6
Toxemia.....	.....	.....	6
Rheumatism Inflammatory.....	1	.....	.....
Septicaemia.....	5	13	14
Abdominal Abscess.....	.....	2	.....
Exophthalmic Goitre.....	2	2	5
Alcoholism.....	7	.....	2
Anaemia Pernicious.....	8	11	15
Anaemia.....	3	5	4
Leukemia.....	1	2	2
Diabetes Mellitus.....	15	13	9
Addisons Disease.....	2	.....	.....
Syphilis.....	.....	1	5
Rheumatoid Arthritis.....	.....	1	1
Purpura Hemorrhagica.....	.....	2	1
Arthritis Deformans.....	.....	1	.....
Thyroidism.....	.....	.....	2
Hodgkin's Disease.....	.....	.....	1
	48	56	74

2. *Diseases of the Nervous System.*

Meningitis.....	15	13	6
Chorea.....	1	.....	.....
Cerebro Spinal Meningitis.....	5	1	2
Locomotor Ataxia.....	1	2	2
Cerebral Haemorrhage.....	12	20	17
Cerebral Embolism.....	1	.....	3
Cerebral Tumour.....	4	1	2
Melina.....	1	.....	.....
Abscess of neck.....	1	.....	.....
Heat prostration.....	1	.....	.....
Rickets.....	.....	2	.....
Cerebral hernia.....	.....	1	.....
Haemophilia.....	.....	1	.....
Empyema.....	.....	1	.....
Malformations.....	26	20	23
	292	362	396
Paralysis (general).....	10	3	5
Paralysis (agitans).....	1	3	3
Paralysis (throat).....	1	.....	.....
Disseminated Sclerosis.....	1	.....	.....
Epilepsy.....	3	3	1
Convulsions (not specified).....	13	.....	.....
Concussion of the Brain.....	1	.....	.....
Abscess of the Brain.....	1	.....	.....
Cerebral Abscess.....	.....	.....	2
Insanity.....	1	.....	.....
Apoplexy.....	28	36	31
Hemiplegia.....	4	4	7
Cerebral Congestion.....	1	.....	.....
Neuritis.....	1	.....	.....
Hemorrhage into Spin. Cord.....	1	.....	.....
Psychosis (not mentioned).....	1	.....	.....
Encephalitis.....	.....	1	1

Dementia.....	.....	.....	2
Cerebral Thrombosis.....	.....	.....	1
Otitis Media.....	.....	.....	2
	107	87	88

3. *Circulatory System.*

Aneurism.....	1	3	2
Endocarditis.....	14	17	25
Chronic Valvular Disease.....	46	22	19
Angina Pectoris.....	3	5	9
Arterio Sclerosis.....	36	40	75
Myocarditis.....	31	30	48
Heart Failure.....	11	20	48
Varicose Ulcer.....	1	.....	.....
Aortic Regurgitation.....	4	2	3
Mitral Regurgitation.....	3	11	5
Fatty Degeneration.....	2	.....	.....
Acute Dilatation.....	9	9	16
Mitral Insufficiency.....	1	5	2
Embolism.....	2	3	.....
Cardiac Insufficiency.....	2	5	4
Atheroma.....	2	.....	.....
Ruptured Varix.....	1	.....	.....
Thrombosis.....	.....	1	.....
Ovarian Cyst.....	.....	1	.....
Hemorrhage (not specified).....	.....	.....	3
	169	174	259

4. *Diseases of the Respiratory System.*

Bronchitis.....	24	14	21
Broncho Pneumonia.....	23	62	56
Lobar Pneumonia.....	10	12	36
Hypostatic Pneumonia.....	2	2	3
Pleuro Pneumonia.....	1	3	4
Pneumonia.....	61	133	85
Empyema.....	1	3	2
Haemoptysis.....	1	1	.....
Congestion of Lungs.....	2	.....	.....
Oedema of Lungs.....	1	2	6
Pulmonary Abscess.....	1	.....	4
Pulmonary Embolism.....	1	.....	.....
Asthma.....	.....	1	6
Gangrene of Lungs.....	.....	1	.....
Toxemia.....	.....	3	.....
Pleurisy.....	.....	.....	3
Laryngitis.....	.....	.....	4
Hematemesis.....	.....	.....	1
	128	237	231

5. *Diseases of the Digestive System.*

Diarrhoea.....	.....	.....	3
Catarrhal Gastritis.....	1	.....	.....
Abscess of Liver.....	2	.....	.....
Duodenal Ulcer.....	2	.....	.....
Appendicitis.....	7	8	17
Peritonitis.....	14	6	9
Strangulated Hernia.....	1	5	2
Cirrhosis of Liver.....	3	4	1
Jaundice.....	.....	3	3
Intestinal Obstruction.....	14	9	10
Ileo Colitis.....	1	.....	1
Gastro Enteritis.....	42	1	9
Gastritis.....	8	2	3
Gastric Ulcer.....	3	2	2
Convulsions (Gastritis).....	6	2	2
Intussusception.....	2	.....	1
Cholecystitis.....	2	.....	3

Gall Stones.....	.....	3	3
Neuritis of Stomach.....	1	.....	.....
Starvation.....	.....	.....	1
Enteritis.....	7	2	.....
Colitis.....	.....	.....	1
Cholelithiasis.....	2	.....	1
Intestinal Hemorrhage.....	2	.....	.....
Cancrum Oris.....	2	.....	.....
Dysentery.....	.....	1	.....
Pelvic Abscess.....	1	1	1
Convulsions (not specified).....	.....	3	.....
Volvulus.....	.....	1	.....
Acute Indigestion.....	.....	3	.....
	123	56	73

6. Diseases of the Genito-Urinary System.

Nephritis.....	24	43	36
Parenchymatous Nephritis.....	2	.....	.....
Bright's Disease.....	24	6	12
Uraemia.....	5	3	8
Salpingitis.....	.....	.....	1
Cystitis.....	3	5	2
Uterine Fibroid.....	2	.....	3
Prostatic Hypertrophy.....	3	1	3
Renal Calculus.....	1	.....	.....
Infection after Prostatectomy.....	2	.....	.....
Pyelo Nephritis.....	1	.....	1
Hydronephrosis.....	1	.....	.....
Stoppage of Bladder.....	1	.....	.....
Disease of the Prostate.....	.....	1	.....
Dropsy.....	.....	1	.....
Ovarian Tumor.....	.....	.....	1
Interstitial Nephritis.....	.....	.....	7
	69	60	74

7. Puerperal State.

Eclampsia.....	3	1	4
Placenta previa.....	2	.....	2
Abortion.....	1	2	2
Septicaemia (childbirth).....	3	10	6
Puerperal Fever.....	1	.....	.....
Ectopic Gestatio.....	1	2	.....
Childbirth.....	.....	3	1
Hystoropathy.....	.....	1	.....
Post partem hemorrhage.....	.....	.....	3
Caesarean section.....	.....	.....	3
	11	19	20

8. Diseases of the Skin.

Gangrene (not specified).....	2	3	2
Herpes Zoster.....	.....	1	.....
Epithelioma.....	2	.....	.....
Gangrene (foot).....	.....	.....	3
	4	4	5

9. Diseases of the Bones.

Osteomyelitis.....	1	1	1
Mastoiditis.....	.....	1	2
	1	1	3

10. Diseases Common to Early Infancy.

Mulnutrition.....	33	38	56
Gastro intestinal diseases.....	31	66	67
Still births.....	98	164	132
Premature.....	77	65	89

Asphyxia Neonatorum.....	3	.....	4
Injury at birth.....	6	.....	6
Toxemia.....	.....	2	1
Hemorrhage.....	2	.....	8
Pyloric obstruction.....	3	.....	.....
Meningitis.....	.....	.....	1
Gonococcus Infection.....	.....	.....	3
Icterus Neonatorum.....	3	2	1
Atelectasis.....	1	.....	5
Syphilis.....	2	.....	.....
Meningeal hemorrhage.....	3	.....	.....
Pemphigus neonatorum.....	1	.....	.....

11. *Diseases of Old Age.*

Old Age.....	7	23	22
Debility (general).....	2	10	6
Senile decay.....	28	21	24
Adynamic causes.....	4	.....	.....
	41	54	52

12. *External Causes.*

Accidental injuries, falls, burns, poisoning, etc.....	30	35	34
Murder.....	.....	1	2
Suicide.....	5	3	12
Fractures.....	8	13	19
Hanging.....	.....	.....	1
Killed by train, auto, street car, etc.....	9	13	12
Post operative.....	4	2	7
	56	67	87

13. *Ill Defined Causes.*

Shock.....	1	.....	.....
Extreme physical prostration.....	1	.....	1
Syncope.....	2	.....	.....
Natural causes.....	1	1	.....
Cause not known.....	3	4	7
Cause not given.....	1	1	.....
	9	6	8

Summary of Communicable Diseases Reported From November 1st, 1919 to October 31st, 1920

Diseases	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Total
Chickenpox...	62	41		32	12	11	17	20	8	3	6	83	295
Diphtheria...	77	72	70	36	38	44	62	37	19	40	50	51	596
Scarlet Fever	37	50	103	68	75	38	40	21	13	9	9	30	493
Typhoid													
Fever.....		4	1		1	2	1		3	6	27	20	65
Tuberculosis	9	7	7	8	14	13	18	15	18	8	15	20	152
Measles.....	2	3	14	14	50	216	383	729	327	68	40		1,846
Mumps.....	24	84	247	307	296	138	118	45	7	3	7	7	1,283
Erysipelas...		2	1	2	3	1	1	2		1		1	15
Smallpox.....	4	20	15	14	10	4	2	5		2	4	11	91
Whooping													
Cough.....	8	5	16	11	16	21	27	22	28	19	57	85	315
Influenza.....	7	2	41-3	505	451	1			1				4,008
Cerebro													
Spinal													
Meningitis.....						1				2			3
Polio-myelitis	1										1		2
Sleeping													
Sickness.....		1							1				2
TOTAL....	231	291	515-3	998	966	490	669	896	425	116	216	308	9,166

xIncludes 41 Typhoid Fever cases infected outside of the city.

Showing Deaths from Communicable Diseases From November 1st, 1919, to October 31st, 1920

Diseases	November.	December.	January.	February.	March.	April.	May.	June.	July.	August	September.	October.	Total.
Diphtheria...	4	6	4	1	7	3	3	3	4	4	2	3	44
Typhoid													
Fever.....	1	0	1		1	1	1			1		4	9
Scarlet Fever	1		2	2	1	1		1	2		1		11
Whooping													
Cough.....						2	3		3		2	1	11
Erysipelas...			1									1	2
Influenza.....				76	38	3	2		1				120
Consumption	2	5	5	5	6	6	1	7	2	2	2	1	44
Tuberculosis													
other forms		2	2	1			2			1		1	10
Measles.....						3	3	2	1		1		10
Sleeping													
Sickness.....		1										1	2
Anterio													
Polio-													
myelitis.....				2							1		3
La Grippe.....				5									5
TOTAL....	15	94	15	92	21	19	15	13	13	8	9	12	271

Summary of Communicable Diseases Reports From November 1st, 1918, to October 31st, 1919

Diseases	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Total.
Diphtheria...	6	9	12	14	19	14	7	14	10	15	22	43	185
Scarlet Fever	1	6	26	58	46	35	22	31	26	11	11	19	292
Typhoid													
Fever.....									2	2	2	2	8
Tuberculosis	7	7	22	12	9	12	17	10	13	27	14	16	166
Chickenpox	13	8	2	8	34	36	73	42	9	3	13	40	281
Measles.....	7	1	1	2	4	2	14	9			7	4	50
Mumps.....	1	1	1		2	4	2	5	2	7	8	8	41
Erysipelas.	1		1										2
Smallpox.....	1	1		1				2		5			10
Whooping													
Cough.....	2		1	3	1	2			7	2	8	3	29
Influenza.....	2,816	2,554	202	155	304	171	28	4	2	2	18	12	6,268
Poliomyelitis									2		1		3
TOTAL..	2,855	2,536	268	253	419	276	163	117	73	74	104	147	7,335

This table is inserted for the purpose of comparison.

Showing Deaths From Communicable Diseases From November 1st, 1918, to October 31st, 1919

Diseases	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Total.
Diphtheria...	1	....	1	1	1	3	1	2	1	1		2	14
Scarlet Fever	....	....			1	1	1	1		1			5
Typhoid													
Fever.....	1	....		1									2
Whooping													
Cough.....										1			1
Erysipelas.								1		1		1	3
Consumption	8	5	6	2	3	5	5	1	2	3	2	4	46
Tuberculosis													
other forms	2	1	2	3	1	1	1	2	1				14
Influenza.....	165	84	11	8	23	25	8	1			2		332
TOTAL....	177	90	20	15	34	35	16	8	4	7	4	7	417

This table is inserted for the purpose of comparison.

Summary of Communicable Diseases Reported From November 1st, 1913, to October 31st, 1914

Diseases	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Total
Smallpox.....	9	10	9	7	3			1		3	3	2	47
Erysipelas.....	1	2	1				1			1			6
Measles.....	2	6	4	2	18	42	267	473	220	33	12	4	1,083
Typhoid													
Fever.....	4			1	1		1			9	5	11	32
Scarlet Fever	5	4	17	10	15	8	8	1	2	3	6	18	97
Whooping													
Cough.....	30	33	46	38	226	114	64	36	6	6	12	2	613
Diphtheria.....	26	21	16	16	9	6	10	4	19	27	13	27	194
Chickenpox.....	24	44	45	44	44	27	44	11	3	18	4	22	330
Mumps.....	2	1		6	13	1	4		1		1	3	32
Poliomyelitis				1									1
Tuberculosis	13	12	7	10	10	13	14	16	15	11	13	12	146
TOTAL....	116	133	145	135	339	211	413	542	266	111	69	101	2,531

This table is inserted for the purpose of comparison.

Showing Deaths From Communicable Diseases From } November 1st, 1913 to October 31st, 1914

Diseases	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Total.
Tuberculosis	5	8	11	11	5	10	6	7	9	7	5	5	89
Diphtheria.....	5	2		2	2		1	1	1		1	1	16
Measles.....							2	3	2				7
Typhoid													
Fever.....	3					1			1	2	1	1	9
Whooping													
Cough.....	1	2	1	1	4	6	3	1					19
Influenza.....					1								1
Erysipelas.....		1			1	1						1	4
Tuberculosis													
other forms					1	2	2	1					6
Cerebro-spinal-													
meningitis			1			1		2	1				5
TOTAL....	14	13	13	14	14	21	14	15	14	9	7	8	156

This table is inserted for the purpose of comparison.

KINGSTON

Kingston, Ont., Nov. 1st, 1920.

The Chairman and Members of the Local Board of Health, Kingston, Ont.

The year that has just closed has been marked by a prevalence of infectious diseases that surpasses all records for many years back. Judging from information that has come to me from various sources, I believe that this Municipality is not alone in this respect, but that all through the Province, similar conditions have prevailed. While many factors have probably been active in producing this state of affairs, one that undoubtedly has played an important part, is the fact that a large number of cases, particularly of smallpox, scarlet fever and diphtheria have been of an extremely mild type, in some cases escaping observation entirely, and in many cases not requiring the attendance of a physician, thus spreading the disease in an uncontrolled and uncontrollable manner. It is a very good illustration of the statement that these diseases are not spread very far by the serious cases that are immediately diagnosed and isolated, but by the milder types that wander about, able to continue at school or at work without recognition of any ailment either by themselves or by those with whom they associate.

Of the most important diseases the following record has been made:—

Smallpox—Between November 1st, 1919, and Nov. 1st, 1920, 46 cases were reported and isolated. Very few of these were severe, most being of a mild type that cleared up entirely in two weeks and were attended in their homes by their own physicians. A few cases occurred in each of the Hospitals in patients admitted for other ailments, and were isolated and treated there. A study of the reports on these cases is interesting. Very few of them had ever been successfully vaccinated, none recently, and in several homes there would be one or two cases of smallpox, while the other members of the family, who had been previously vaccinated escaped entirely, although having been directly exposed to the disease for several days.

In anticipation of an outbreak the Board of Health last year advised vaccination of school children and about 50% of them were vaccinated before March, 1920. In October, 1920, the Board of Education on the advice of the Board of Health decided that all school children should be vaccinated or leave school during such time as there were any cases of smallpox in the municipality. As a result of this action nearly all school children are now vaccinated and the chances of spread of the disease correspondingly lessened. A question often asked is "why should school children be vaccinated and general vaccination not be enforced?" In Kingston there is good reason for this. In 1908-1909 we had an epidemic of smallpox here and general vaccination was made compulsory. As a result the whole community was thoroughly vaccinated. Since then the Army regulations have insured thorough vaccination of all those enlisted during the war. In addition to this many adults have been vaccinated voluntarily, and many children under school age have been vaccinated on the request of their parents. Then there is always the large percentage in every community that have a natural immunity, so that by vaccination of school children at the present time one of the most susceptible classes in the community has been attended to, and during the last twelve years a relative immunity has been obtained by a large percentage of the local population. Unless the disease should show signs of becoming more malignant in type I do not think that further extension of the vaccination regulations is necessary. Judging from the experience gained in the Influenza epidemic of two years ago no compulsion will be required if the disease takes on a fatal type. A 25% death rate would soon convert even the most vigorous type of conscientious objector. In connection with the subject of vaccination a curious phase of human nature is apparent. If a man is going to build a house he consults architects and builders. If he has trouble with his heating system he consults plumbers and steam fitters, not doctors, but in many instances if a man wants advice regarding vaccination, a matter that is purely medical and surgical in nature, instead of looking to the medical man who have studied the matter through successive generations well on to two hundred years, he will in preference take the advice of men whose only qualifications are a mass of misinformation, a glib tongue and an arm that never suffers from writer's cramp. The fact that vaccination is supported by over 90% of all medical men the world over, and by practically 100% of the laboratory men who spend their lives in investigation of this and allied problems and that these men vaccinate themselves and their families as a preventative against smallpox should be sufficient to convince reasonable people that there is something in it.

There were 138 cases of scarlet fever reported during the same period, 9 of these came here as patients already ill with the disease. The mildness of a large percentage of these cases is the cause of the prevalence of the disease. Many of these cases are never recognized as such but are thought to be cases of sore throat or indigestion and so the disease is passed on to others.

Diphtheria has been the most serious epidemic we have had. Many of the cases have been severe, and the death rate has been high. In this disease delay in finding out the nature of the trouble has been the cause of fatality. When a physician is called in to see a child, for the cases have been to a large extent children under school age, who has been sick for two or three days with a sore throat and finds the throat, sometimes the mouth and nose, plastered with a dense white membrane, he marvels at the apparent lack of observation on the part of those entrusted with its care. Death in such cases is very probable, and it is doubly sad when

one reflects that early injection of antitoxin would have averted a fatal issue. When the public

generally begins to realize what is now a well established and generally recognized fact among the medical profession that infectious diseases generally are spread by contact with moist secretions from the infected individuals, generally from mouth and nose, and that infections of various types can be early recognized by careful examination, and that early treatment is the big factor in eliminating fatality the incidence of such diseases in the community will decline very rapidly. When every case of sore throat is regarded as a possible case of scarlet fever, diphtheria or epidemic meningitis, and is immediately referred to a physician for examination we will have fewer regrettable incidents to record. In connection with the recognition and reporting of these infectious cases among school children I wish to express my thanks to the School nurse for valuable assistance and information.

We had three cases of typhoid fever reported this last year and in each case the infection was traced to outside sources. In so far as this shows that our water and milk supplies are free from disease contamination the condition is satisfactory.

Last spring after a conference between representatives of the Provincial Board of Health, the Local Board of Health and the General Hospital, it was decided to open a clinic at the Hospital for venereal diseases. The arrangements for this are practically completed, and the clinic will be opened for the reception of patients at an early date.

During the past year two conferences between the Local Board of Health and the milk producers of the locality have taken place with a view to determining the possibility of having milk pasteurized and distributed to a central plant. The matter is still under consideration and it is to be hoped that a scheme that is workable will be arrived at as it will mean improved quality of milk combined with economy in distribution.

During the year a By-law for the better protection from contamination of foods offered for sale, was drafted by Mrs. Macgillivray and sent on to the City Council by the Board, after the latter has recorded its approval of the measure. Up to date this By-Law has had only one reading, but the Board is hopeful of having the matter finally dealt with before the year closes.

Improvement in housing conditions has had the Board's serious consideration, and in some cases progress has been made, but the high cost of material and of labour has prevented any energetic campaign to be undertaken. Only absolutely necessary improvements have been ordered, but it is hoped that in the near future it will be possible to get rid of places that can only be classed as shacks.

In my report last year reference was made to the need of more help at the Home for the Aged. Formerly, medical, surgical or nursing equipment here was not very necessary, but with the present tendency of the General Hospitals to limit their Ward services to acute cases and the impossibility of having the milder types of mental cases that may be classed as senile degeneration admitted to the Hospitals for the Insane, owing to the over crowding of these with acute cases, there is thrown on the Municipalities the responsibility of caring for a number of cases of illness and helplessness in municipal refuges. This means that at least one nurse and one orderly will have to be added to the staff of our Home here in Kingston unless the City Council can arrange the matter with the Local Hospital.

All of which is respectfully submitted.

A. R. B. WILLIAMSON,

Medical Health Officer.

KITCHENER

Kitchener, November 26th, 1920.

The Chairman and Members, Local Board of Health, Kitchener, Ont.

Gentlemen,—I beg to present herewith my annual report for 1920.

The most important disease with which we had to contend during the year was smallpox. There were 86 cases. There were a number of severe cases, but the majority were of a mild type. 66 cases were treated at the Isolation Hospital. In many of them it was impossible to trace where the case was contracted. Free vaccination was offered to schools by the different Boards and 1,500 children were vaccinated. All the city physicians assisting. Several factories in which the disease appeared, offered free vaccination to their employees, but comparatively few availed themselves of the offer.

Influenza, complicated in many cases with severe pneumonia, was prevalent during January and February. The number of deaths from pneumonia during the year was 44. Number of deaths from tuberculosis was 14, from cancer, 8. There were 22 cases of scarlet fever, twelve being treated at the Isolation Hospital. There were 8 cases of diphtheria with 1 death, and 160 cases of measles. No cases of typhoid fever were reported.

The Provincial Laboratory reports on water were all good. All city water during the year was from artesian wells.

The milk tests have, on the whole, been good and up to the required standard.

Total number of deaths during the year, 290; and births, 575.

Respectfully submitted,

JOHN MCGILLAWEE.

Medical Health Officer.

LONDON

London, December 7, 1920.

Dr. John W. S. McCullough, Chief Officer of Health, Toronto, Ontario.

Dear Doctor,—I beg to submit the following report of the year's work of the Health Department, City of London, for 1920.

Early in the year we began to hear reports that a second season of the influenza epidemic was being experienced in different parts of Canada and United States. In a very few weeks after the new year cases began to develop in London. It was soon found necessary to provide a temporary hospital for a number of cases. To this end arrangements were made whereby the west wing of Victoria Hospital was used by the Board of Health for influenza cases. In this ward one hundred and five cases were treated with five deaths. This is a remarkably good showing when compared to number of deaths from influenza during the previous year, when the death rate was very heavy. The epidemic of 1920 was different from that of the previous year. During the first epidemic practically all the deaths occurred in patients sixteen to thirty years of age. During the 1920 epidemic deaths occurred in people of almost all ages. Many of the deaths at this time were due to ordinary pneumonia and other causes, but the excited public attributed practically all deaths to influenza. The nurses who worked for the Board of Health at the emergency hospital worked hard for long hours and their efforts were rewarded by the saving of lives.

The following diseases were reported to the M. O. H. during 1920:—

Diphtheria.....	170 cases;	21 deaths.
Scarlet Fever.....	103 cases;	1 death.
Whooping Cough.....	186 cases;	0 deaths.
Measles.....	232 cases;	2 deaths.
Influenza.....	105 cases.	
Pneumonia.....	2 cases.	
Rashes, etc.....	127 cases.	
Chickenpox.....	104 cases;	0 deaths.
Smallpox.....	15 cases;	0 deaths.
Typhoid.....	15 cases;	2 deaths.
Mumps.....	714 cases;	0 deaths.
Venereal Disease.....	120 cases;	0 deaths.

Total cases reported 1893.

The total number of cases of smallpox seems low, considering that there were many cases throughout the province. Each case of typhoid fever was given special investigation. Most cases occurred in people coming to the city from United States and other points, and in those who had been out of the city when the disease was contracted. The one hundred and seventy cases of diphtheria includes all cases sent to the diphtheria ward. Some of these proved not to be diphtheria, but were treated as such as a precautionary measure. The twenty-one deaths from diphtheria may be attributed mostly to neglect on the part of the parents in not calling a doctor soon enough. The M.O.H. has never seen a patient die from diphtheria where antitoxin was given during the first day of illness.

Scarlet fever the past year was of a mild type and the death rate low.

Cases of mumps were very prevalent during the early autumn and winter months and have lingered on until the present.

One case of smallpox was very severe, but most cases were of a moderate nature.

Chickenpox and whooping cough are with us more or less practically all the time. The number of cases of venereal disease reported was one hundred and twenty.

A Venereal Disease Clinic is now being conducted at Victoria Hospital, and indications point to a great deal of good being done in this regard. People generally are alert to this menace and aid in many ways towards stamping out these diseases.

The films, "The End of The Road," and "Open Your Eyes," have done much to arouse the public. Large audiences saw both pictures here.

The Plumbing Inspector has been very faithful in his duties, but has been working under a great handicap since the City Council has practically suspended the plumbing by-law. The M.O.H. would like to see a by-law passed at an early date in order that such work could be kept under better control by the inspector.

During the year all public and separate schools were personally inspected by the M.O.H. and reports made on each school as per attached forms. In the newer schools, in a general way, there was little to object to. However, some of the older and smaller ones, required considerable improvement.

Dairy inspection was more vigorously carried on the past year than any time since the beginning of the war. Hundreds of samples of milk were taken to Dr. C. S. Tamlin, and tested for adulteration and bacteria. Several were prosecuted for selling milk below the standard called for in the by-law. The bacteria count varied very much; some were very good; some very bad. The Board of Health has asked for a city by-law giving the Veterinary Inspector power to forbid milk being sold in London which contains more than 100,000 bacteria per c.c. This means better milk for another year.

The conditions of restaurants in the city have greatly improved this year due to the vigorous and frequent inspections given same by Inspector R. H. Sanders and perhaps in a measure due to the regulations now before the City Council. The improvements extend from cellar to attic.

Just at present barber shops and butcher shops are receiving special attention. Mrs. Patterson, our communicable disease nurse, has been kept busy and is doing good work.

The M. O. H. wishes to thank Mr. J. H. Saunders, Mrs. Partridge, Mr. Russell, and the secretary, Mr. Baker, for their support and suggestions during the year. Ifrequently called on the Chairman and Secretary for advice and suggestions. At all times they gave freely of their time and ability.

Your obedient servant,

W. S. DOWNHAM,

Medical Officer of Health.

London, Ontario, November 15th, 1920.

His Worship the Mayor, and Aldermen, of the City of London.

Gentlemen,—The Board of Health held seventeen meetings in 1920.

The report of the Chairman and the Medical Officer of Health will give details of work, and are submitted herewith.

The following is a statistical statement of the main activities, namely:

The Plumbing By-Law has been partially suspended. Number of permits issued 423; number of inspections made 706; fees received \$1,137.55.

Over one hundred inspections of outside closets were made and several ordered closed. York, Glebe, Horn, Glasgow and Bathurst Streets sewers ordered constructed.

Influenza cases cost the Board over \$3,000.

Venereal Diseases Clinics established.

The following inspections have been made: General sanitary 3,552; quarantined 290; dumps 123; fumigations 14; complaints 122; consumption visits 3,176; Public Health Nurse 735.

Butcher shops regularly inspected.

Water tests 74; milk tests 504 and 244 herds inspected.

Restaurant regulations revised.

The following cases of contagious diseases were reported and considered by the Board: Diphtheria 112; Scarlet Fever 65; Measles 124; Smallpox 6; Influenza 16; Typhoid 17; Chickenpox 58; Whooping Cough 79; Tuberculosis 49; Mumps 459; Gonorrhea 75; Syphilis 40.

Your obedient servant,

S. BAKER,

Secretary.

London, December 28, 1920.

Chairman and Members, Board of Health.

Gentlemen,—I beg leave to submit the following report for the year 1920, from January 1st, to November 30th, 1920:—

Permits issued.....	564
Permits cancelled.....	2
Total inspections.....	1,123

Fees collected for inspections	\$1,282.25
56 copies by-laws sold	5.60
Journeyman plumbers who appeared before the examining Board numbered	14
Number passed and received certificate of qualification	9
Number who failed	5
Number registered and failed to present themselves	7
Master plumbers who appeared before the Board	11
Number passed and received certificate of qualification	10
Number who failed	1
Number registered and failed to appear	2

I found it very difficult at times to enforce the plumbing regulations that were given to me by the City Council on April 22nd, but I may say that the plumbers of the city have carried out the regulations very satisfactorily with a few exceptions.

I would urge the Board to recommend to the incoming Board to take immediate action to have the Plumbing By-Law, as amended by the Council, approved by the Provincial Board of Health, as soon as possible.

Respectfully,

JAS. C. YOUNG,

Plumbing Inspector.

London, Ontario, November 12th, 1920.

To His Worship the Mayor, and Members of the Council 1920.

Gentlemen,—I beg to submit my report as Chairman of the Board of Health for 1920, viz :

Plumbing

The Plumbing Inspector has done good work, and there have been valuable results secured. However, the Council has practically suspended the by-law, and much "go as you please" work is being done. This is unfortunate. The Board of Health is of opinion that the by-law should be revised removing any unnecessary restrictions, but retaining every regulation that will add to the sanitary condition of the City. Health laws are of greater importance than the tax-rate or popularity. The Board is desirous of co-operation with the members of the Council, and have at all times tendered their assistance. There is not, and should not be, any spirit of antagonism.

The plumbing inspection fees to October 31, 1920, amounted to \$1,137.55.

Sewer System

The Board of Health has co-operated with the Board of Works in this matter. Outside closets are being looked after carefully, and over one hundred inspections made. Ratepayers failing to connect with the sanitary sewer system of the city, have been summoned to the Police Court, when they have made no reasonable effort to comply with the direction of the Board. Gradually, but, effectively, outside toilets are being removed. The Police Magistrate has been most reasonable in his decisions and deserves the thanks of the Board for his wise and helpful advice.

The Board ordered the construction of the York, Glebe, Horn, Glasgow and Bathurst Street Sanitary sewers where petitions could not be secured, and the Board after careful examination, were of the opinion that the sewers were necessary. The Board of Works at once ordered the construction of these sewers.

The Board most heartily approves of the proposed sanitary sewers for London West and the beginning of the improvement of low lying districts sanitation. The Board has considered the heavy expense connected with this work, but it must for obvious health reasons be done.

Cove Hospital

Fortunately Smallpox has not been any serious menace, and the expense in connection with this has been small.

The Influenza epidemic, while not so bad as last year, was important. The use of an Emergency Hospital at Victoria Hospital helped out, but the expense was \$2,970.

Why should the Hospital Trust refuse to attend to influenza cases as a part of their duties. The Board of Health is not possessed of the necessary equipment for the operation of a Hospital, and have not the necessary expert administrative officials for management.

Venereal Diseases

The Board of Health met the Dominion and Provincial Government Officials respecting the establishment of a Venereal Diseases Clinic in connection with Victoria Hospital. It is the intention of the Provincial Government to assist Local Boards in establishing these special Clinics, and in minute No. 36 of the Board of Health the particulars are set forward fully. Pursuant to this agreement, the Board recommended that a Venereal Diseases Clinic be established in Victoria Hospital. Mr. Heard stated that the Hospital authorities had intended establishing twenty beds for indoor patients.

Miss MacVicar had recently been appointed to the position as Venereal Diseases Nurse at a salary of \$1,200.00 per annum, \$500 of the salary to be paid by the Provincial Government.

Sanitary Inspections

The Board of Health 1920, has been seriously handicapped in its work by reason of the indisposition of the Sanitary Inspectors. They have found it absolutely necessary to make the appointment of Mr. R. H. Sanders as Sanitary Inspector. Notwithstanding the difficulties, the officers had made 3,552 inspections; had quarantined 290 places; inspected 123 dumps; fumigated 14 places; investigated 122 complaints re insanitary conditions; had made 3,176 visits to homes infected with consumption, and the Public Health Nurse had made 735 visits and inspections. The Board recommends that the Board for 1921 should take steps to strengthen the Staff of Sanitary Inspectors.

Butcher Shops

Butcher shops of the City have been regularly inspected, and in two cases meat exposed for sale taken therefrom and destroyed and sanitary conditions ordered improved, and these orders were obeyed. There is but little if any Slink Veal sold in the city.

Water Examinations

The water supply of the City has been carefully watched and in most cases found satisfactory. The Board is of the opinion that greater care should be exercised in preventing contamination entering the ponds at Springbank. 74 tests had been made during the year, and reports submitted thereon to the Board.

Restaurants

There has been considerable interest in the question of sanitation of Restaurants. The Sanitary Inspector had been instructed to make regular and frequent visits to all restaurants and to demand compliance with sanitary regulations. Possibly, during the indisposition of the Sanitary Inspectors, this work was not as well attended to as it might have been. Your Board found conditions not so unsatisfactory as newspaper reports would lead one to imagine. However, that the public minds may be satisfied, the instructions of the Board have been formulated into a set of provisions which have been referred to the Council with a request that they will pass a by-law accordingly, and this matter is now under consideration by the Council.

Milk Inspections

Your Board, thanks to the energetic action of the Sanitary Inspector, Dr. Tamlin, has given careful attention to the milk supply of the City. The reports of the Sanitary Inspector as printed in full in the minutes of the Board show that the milk supply of the City of London is, on the whole, satisfactory. 504 milk samples were tested and 244 herds inspected. The milk by-law has been amended giving the Inspectors authority to prevent the sale of impure milk, if below the standard approved by the Board. The regulation of the milk supply coming from outside municipalities is by no means an easy matter. The by-law provides that all milk conveyed to the City by means of electric or steam railway shall be transported in sealed containers.

Officials

The thanks of the Board is due to the Medical Officer of Health, Sanitary Inspectors, the Veterinary Inspector and the Secretary for faithful and efficient services, and I have much pleasure in expressing my appreciation of the earnest, loyal and efficient co-operation of my colleagues on the Board of Health.

All of which is respectfully submitted.

J. H. SAUNDERS,

Chairman.

NIAGARA FALLS

Niagara Falls, Ontario, Dec. 27, 1920.

Annual Report Department of Health of the City of Niagara Falls for the Year 1920

Estimated Population	15,000
Number of births, including still-born.....	221
Number of deaths.....	414

This includes the number of births and deaths brought in from outside points, particularly the Township of Stamford and the Hydro Electric Power Works, who employ four thousand men and have numerous accidents.

Influenza

During the late winter and early spring we had considerable influenza, with sixteen (16) deaths, out of a possible two hundred (200) cases.

Scarlet Fever

No deaths have been reported in scarlet fever. We have had a number of cases, possibly twenty-five (25) in all.

Diphtheria

There were about twenty (20) cases of diphtheria, with four (4) deaths. This seems a high percentage, but when you consider the cause you will understand the high death rate. One of the parents, in one case, refused antitoxin, while the other three cases were seen by the physician very late in the disease. The Matron and nurses at the General Hospital all received immunizing doses. We had one nurse in training contract the disease and one graduate who was in attendance, also contracted diphtheria.

Smallpox

We had two cases of smallpox of a mild nature. These people were not inhabitants of Niagara Falls, but were traced to a distance considerably outside of the City.

Measles

No deaths have taken place from measles, or any of its complications. We had probably thirty (30) cases.

Pneumonia

During the year 1920 there were twenty-eight (28) deaths from this disease. In some of these cases death was caused by contracting influenza which resulted in pneumonia.

Typhoid Fever

Four (4) fatal cases of typhoid fever for the year. Three (3) of these were from outside points amongst the foreign element, while one, a Canadian, girl of fifteen contracted the disease apparently at home, as there were two (2) other cases in the same house. This girl died of tubercular meningitis. We had, in all, about eighteen (18) cases.

Veneral Diseases

In the present year there were forty-seven (47) cases reported. These were reported as follows:

In August—2, one gonorrhea and one syphilis.

September—7, six gonorrhea and one chancroid.

October—16, fourteen gonorrhea and two of syphilis.

November—10, seven gonorrhea and three of syphilis.

December—12, seven gonorrhea, four syphilis and one chancroid.

No cases were reported to me during the first seven months of the year. I had the Secretary of the Board write each physician in the city to remind him of his duty, consequently I have had fuller reports.

Licenses

We have in the Municipality of Niagara Falls nine (9) pool licenses and twenty (20) restaurants. These are all licensed each year and, by this means, we can investigate any complaints or irregularities.

The City, as yet, has only one (1) School Nurse, but it is the intention, I believe, of the School Board to appoint two (2) in 1921. The Township of Stamford will co-operate with the City to have the school nurses examine each school in the Township, which will be of great benefit to all concerned, each municipality paying pro rata.

I give also the report of the school nurse, Miss J. M. Allan, for the year 1920:—

	No. Cases	
Inspections at schools (6).....	29,565	
Visits at homes.....	393	
Tonsils and adenoids removed.....	30	
Eyes fitted with glasses.....	43	
Teeth pulled and treated.....	77	
Treated for anemia.....	6	
Treated for chorea.....	11	
Defective hearing.....	2	
Defective palate.....	2	
Enlarged glands.....	5	
Cardiac disease.....	1	
Epilepsy.....	1	
Acute Eczema.....	2	
	No. Cases	No. Exposures
Scarlet Fever.....	20	22
Diphtheria.....	10	7
Measles.....	47	45
Mumps.....	30	26
Chickenpox.....	59	18
Whooping Cough.....	16	4
Acute Carya.....	15	
Itch.....	11	
Ringworm.....	8	
Smallpox.....	3	3
Meningitis.....	3 (2 fatal)	
Tubercular Glands.....	1 (operated on)	

All these cases of exposure were excluded from school. Dental and medical inspection of schools would be a great advantage to pupils, teachers and parents.

(Signed) J. M. ALLAN.

Water

Our water supply in the City might be improved in some respects. Our chlorinating plant works wonders, but we need a filtration plant as well. We will never have good water until such a plant is installed, and now that dredging the Chippewa Creek will be carried out on a large scale by the Hydro Electric Power Commission, the chlorine in the water will have to be materially increased. One solution would be to remove the intake pipe in the river a considerable distance up; another would be the plan the Provincial Engineer is now working on, but some of the municipalities concerned object to the scheme. Perhaps, after the Hydro Canal is finished, some solution may present itself.

Milk

The milk in quantity and quality has been better during 1920 than heretofore and we have had fewer complaints. When all pasteurizing plants in the City have installed sterilizing machines, the bottles will be better taken care of. This will be absolutely necessary in the very near future. Each person who supplies milk in the City has a license, but, until the Council passes a by-law, there is no license imposed on the farmer who brings in the milk. This has often been recommended. The farm yards are frequently inspected by the milk inspector; the milk at the wagon is tested very often; and the Medical Health Officer and Board of Health also inspect the farm yards. These places have been greatly improved within the last two years.

There is only one proper means of supplying milk to any municipality and that is—certi-

fied milk, but this would come so costly that only a very few could afford it. This could be more easily reached if the Dominion Government would insist on applying the tubercular test to milch cows and exclude those which react. Possibly one-third of those now supplying milk would be removed from the herd.

All of which is respectfully submitted.

H. LOGAN, M. O. H.

PETERBOROUGH

Peterborough, Ont., Nov. 30, 1920.

To the Board of Health of the City of Peterborough.

Mr. Chairman and Gentlemen,—Herein is submitted the annual report of the M.O.H. of this city according to By-Law to. 2294.

The water of the City is much improved and now requires less chlorination.

There have been many complaints re garbage and scavenger, i.e. 670 and 350 respectively.

It will be necessary to extend sewer in some parts of the City, also water service.

Efforts are being taken to eliminate the odours emanating from certain factories, and successfully so.

The number of contagious and infectious cases during the year, is as follows:—

Diphtheria 25, Scarlet Fever 9, Measles 148, Smallpox 83, Typhoid 3.

At present there are six cases in the Isolation Hospital, as follows:—

Diphtheria 3, Measles 1, Scarlet Fever 2.

The General Health of the City is good.

I have the honour to be, gentlemen,

Your obedient servant,

(Sgd.) T. W. H. YOUNG,

M.O.H., City of Peterborough.

Health Department

Peterborough, Ont., December 2nd, 1920.

Sanitary Inspector's Report

To Dr. T. W. H. Young, Medical Officer of Health, City of Peterborough, Ontario.

Dear Sir,—I have the honour to submit my fourth annual report for your consideration.

I regret to report that I have received double the amount of complaints re garbage and scavenger complaints than any previous year which has given me a great deal more work. I still find a number of earth closets in bad condition—have notified landlords of conditions of closets, some of them are very reluctant to make improvements. Some landlords I have had to summon to Police Court. I still find some people will not get proper receptacles; this gives the garbage men extra work.

The following list of complaints will give you some idea of the work being done by the Sanitary Inspector:—

Garbage Complaints.....	670
Scavenger Complaints.....	350
Slaughter Houses.....	21
Insp. Cow. Byres.....	100
Insp. Milk Vendors.....	25
Milk Tests.....	203
Insp. Butcher Shops.....	20
Dead Animals.....	11
Stables Inspection.....	24
Removing Hen Coops.....	9
Insp. Hotels.....	6
Insp. Boarding Houses.....	10
Bread Wagons open in front.....	10
Insp. Bakeries.....	12
Notices Served.....	176
Cesspools.....	1

Insp. Houses and Cellars.....	18
Police Court Cases.....	4
Insp. Yards and Lanes.....	237
Insp. all Laundries twice.....	
Insp. Factories.....	3
Insp. all Fruit and Fish stores twice.....	
Insp. Inverlea Park Dressing rooms.....	1
Diphtheria cases.....	25
Scarlet Fever Cases.....	9
Measles Cases.....	148
Smallpox Cases.....	83
Typhoid Cases.....	3
Boarders living in Quarantine Houses, to M. O. H.....	13
Disinfected Houses.....	10

I would also like to say a few words of appreciation of the assistance given me by Mr. F. W. Miller, Relief Officer, both in the office and in the investigation of complaints.

All of which is respectfully submitted.

(Sgd.) C. S. STAPLETON,

Sanitary Inspector, City of Peterborough.

PORT ARTHUR

Port Arthur, Ont., December 17, 1920.

Mr. E. J. B. Dobie, Chairman of Board of Health, City.

Dear Sir,—I beg to submit my Annual Report for the year ending October 31st, 1920.

Early in the year we had a number of cases of Scarlet Fever and Chickenpox, with several deaths from the Scarlet Fever. In April and May, and June, there was a considerable outbreak of Measles, also in May and June we had a number of cases of Smallpox, the heaviest outbreak we have had for years. I am pleased to be able to say though, without deaths.

There were three cases of Typhoid treated in the city hospitals, one from Port Arthur, one from Nolalu, and one from Winnipeg, with one death; the patient from Nolalu. Just one case from the city is a record of which we may well be proud, when we consider the serious outbreak of several years ago.

It is also gratifying to be able to state that our Isolation Hospital has not had a patient for some weeks this Fall. At present we have not a case of Measles in the city, and only four cases of Scarlet Fever. In fact the city is almost free from contagious diseases at present.

I examined nine insane persons in the gaol for the Police Magistrate. I attended eleven charity patients in the hospitals, nineteen in my office, six in their homes, and ten in the Isolation Hospital.

I have attended the children in the Children's Shelter where we nearly always have patients as most of the children are from homes and surroundings where they receive little or no care.

We had eight cases of tuberculosis reported with eighteen deaths. I am certain there is a laxity in reporting these cases, but one reason the number of deaths is greater than the cases reported is because the deaths from the surrounding townships are registered in our city, and come into our death returns, although no city doctor may have seen the case. Among the foreign population, I find that tuberculosis is looked upon as hopeless, and medical aid is, often, not called.

We have one nurse constantly engaged in school work, she visits each school in the city weekly, follows all children absent over two days to their homes to find out the reason for their absence. She insists on seeing the children themselves and thus sometimes discovers children suffering from contagious diseases, which have not been reported. These cases are reported to me, and I visit and quarantine them. I also visit the schools occasionally to inspect the general conditions.

Last winter on account of the large number of Scarlet Fever or Chickenpox cases, I engaged the services of a second nurse until the summer holidays, since when we have our regular nurse on duty. As there are seven Public Schools and three Separate Schools to be visited weekly, our nurse is kept very busy, and I think the Board shall have to employ another regular nurse, although the almost perfect state of the health of the children at present speaks well for the efficient care given by our present nurse.

I have been called to the Police Station several times during the year to attend prisoners, who were ill or hurt. I have also attended eight patients in the Fire Halls, for the city.

With the Inspector, I visited the following dairies:—

Ben Thomas.....	McIntyre Township.
S. Kuiskilla.....	McIntyre Township.
E. Bailey.....	Oliver Road.
R. Lewtas.....	Oliver Road.
E. Ross.....	Oliver Road.
F. Paquette.....	Dawson Road.
F. Laurin & Son.....	Dawson Road.
Canadian Dairy.....	Pearl St.

We have special report forms so as to keep a complete record of each dairy, as to the number of cattle, style of buildings, condition in which buildings and utensils are kept, and all complaints against the dairy. The record of the samples of milk collected. The water supply, etc.

The Sanitary Inspector collects samples of milk from the wagons of the different dealers on the streets and brings them to my office for inspection.

We have also collected some samples of water from the taps and intake to send to the Provincial Laboratory at Fort William. I am glad to be able to state they have all been perfectly good.

I attended the Annual Meeting of Officers of Health at Toronto, in May last. There was a large attendance and much interest shown in the papers discussed. These meetings have certainly been of great benefit to the Province generally, as regards the condition of the Public Health.

Vital Statistics

Estimated Population.....	15,200
Births—Males 286, Females 248.....	534
Deaths.....	322
Death rate per thousand.....	21.18
Birth rate per thousand.....	35.79

Causes of Deaths

Stillborn and premature births.....	62	Found dead.....	2
Accidental.....	16	Tuberculosis.....	18
Scarlet Fever.....	7	Diphtheria.....	2
Typhoid Fever.....	1	Bronchitis and Pneumonia.....	47
Measles.....	2	Cancer.....	11
Influenza.....	43	Apoplexy.....	14
Heart Disease.....	13	Malnutrition.....	3
Rheumatism.....	3	Diabeties.....	1
Gastritis.....	1	Indigestion and Cholera Infantum.....	23
Puerperal and Septicaemia.....	8	Appendicitis and Peritonitis.....	5
Cirrhosis of Liver.....	1	Sclerosis.....	7
Paralysis.....	1	Bright's Disease.....	6
Erysipelas.....	3	Laryngitis.....	1
Salpingitis.....	1	Old Age.....	1
Pernicious Anaemia.....	3	Senility.....	4
Meningitis.....	4	Haemorrhage.....	2
Collapse during operation.....	2	Gangrene.....	1
Rickets.....	1	Hodgkins Disease.....	2

Deaths by Years to Ten Years

Under one year, including still born and premature.....	88
One to two years.....	8
Two to five years.....	7
Five to ten years.....	10

Contagious Diseases for the Year

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Scarlet Fever.....	10	10	10	25	16	9	10	3	2	3	1	2
Chickenpox.....	33	6	14	2	1	4	4					3
Diphtheria.....	1				1	2			1	1	1	
Black Cards.....	4	3										
Influenza.....	1			3		1		1				
Measles.....		2			1	40	178	101	19	3	4	5
Erysipelas.....		1	2									1
Tuberculosis.....			1	1		1	1	1	2		1	
Whooping Cough.....				2	1		1	1				
Smallpox.....					2		26	16	4		2	
Typhoid Fever.....								1	1		1	

Total Number of Diseases for Year

	Cases	Deaths
Scarlet Fever.....	101	7
Chickenpox.....	67	
Tuberculosis.....	8	18
Black S. Cards.....	7	
Spanish Flu.....	6	
Measles.....	354	
Diphtheria.....	14	2
Erysipelas.....	4	
Whooping Cough.....	5	
Smallpox.....	54	
Typhoid Fever.....	3	1

*Contagious Diseases**Scarlet Fever*

Year	Cases	Deaths
1915.....	62	0
1916.....	2	0
1917.....	8	0
1918.....	66	3
1919.....	115	3
1920.....	101	7

Diphtheria

1915.....	3	0
1916.....	4	0
1917.....	5	0
1918.....	16	1
1919.....	4	1
1920.....	14	2

Measles

1915.....	6	0
1916.....	64	0
1917.....	318	0
1918.....	6	0
1919.....	12	0
1920.....	354	0

Whooping Cough

1915.....	6	0
1916.....	44	2
1917.....	6	2

1918.....	58	3
1919.....	1	0
1920.....	5	0

Paralysis

1916.....	2	1
1917.....	0	0
1918.....	0	0
1919.....	0	0
1920.....	1	0

Typhoid

1915.....	13	1
1916.....	11	3
1917.....	2	1
1918.....	5	1
1919.....	4	0
1920.....	3	1

Spanish Influenza

1918.....	183	25
1919.....	587	40
1920.....	6	0

Isolation Hospital

We treated seventy-one patients in the hospital during the year:

Scarlet Fever.....	59
Smallpox.....	9
Diphtheria.....	1
Measles.....	1
Chickenpox.....	1

The total number of nursing days being 2348.

We distributed the following quantities of antitoxin and vaccine received from the Provincial Board of Health:

Diphtheria Antitoxin.....	18- 5,000 units.
Diphtheria Antitoxin.....	14-10,000 units.
Diphtheria Antitoxin.....	22- 2,000 units.
Cerebro Spinal Meningitis Serum.....	9
Silver Nitrate Solution.....	4 doz.
Smallpox Vaccine.....	6 doz.
Culture Tubes.....	8 doz.
Diphtheria Swabs.....	12 Doz.

School Nurse's Report

From October 31st, 1919, to Nov. 1st, 1920.

November 1919.....	Visited 198 Absentees. Examined 938 pupils.
December, 1919.....	Visited 200 Absentees. Examined
January, 1920.....	Visited 317 Absentees. Examined 51 pupils.
February, 1920.....	Visited 181 Absentees. Examined 641 pupils.
March, 1920.....	Visited 164 Absentees. Examined 92 Pupils.

April, 1920.....	Visited 176 Absentees. Examined 38 Pupils.
May, 1920.....	Visited 236 Absentees. Examined 827 Pupils.
June, 1920.....	Visited 210 Absentees. Examined 209 Pupils.
July, 1920—August, 1920.....	OFF DUTY.
September, 1920.....	Visited 50 Absentees. Examined 80 Pupils.
October, 1920.....	Visited 73 Absentees. Examined 1611 Pupils.

Financial Statement

Salaries.....	\$ 9,774.46
Public Utilities.....	417.13
Engineer Suspense.....	100.63
Team Expense.....	200.55
Extra Nurses.....	390.00
Smallpox at Kimberly Hotel.....	440.00
Relief.....	218.00
Daily News Co.....	84.93
Isolation Hospital.....	3,984.73
Board Account Sundries.....	180.55
	<hr/>
	\$15,791.88

Credits

Collections.....	\$111.00
Board of Education.....	375.00
Separate School Board.....	75.00
	<hr/>
	\$ 561.00
Net.....	<hr/>
	\$15,230.88

I have the honour to be, sir,

Your obedient servant,

C. N. LAURIE,

Medical Officer of Health.

STRATFORD

Stratford, Ont., December 11, 1920.

To the Chairman and Members of the Local Board of Health.

Gentlemen,—It is my privilege and honour again to present to you a report of the sanitary condition of the city during the past year. On the whole it has been remarkably good as reported from the City Clerk's office.

Vital statistics for the year were: births 500, marriages 195, and deaths 222. I find, of the number of deaths, there were 39 who had reached the three score and ten or over, the following being the ages and causes of deaths of these. Age 65 years, heart disease; 65 years fractured skull; 61 years, carcinoma; 63, cancer of stomach; 62 years, heart failure; 66 years, diabetes; 63 years, pneumonia; 67 years, heart disease; 69 years, heart disease; 63 years, enlarged prostate; 66 years, pneumonia and nephritis; 63 years, myelitis; 61 years, myocarditis; 69 years, exposure; 62 years, paralysis; 63 years, bronchitis; 67 years, heart failure; 60 years, cancer; 67 years, acute indigestion; 66 years, encephalitis; 62 years, nephritis; 64 years, cancer of breast; 67 years, cancer; 63 years, heart disease; 60 years, cancer of liver; 64 years, gunshot wound in head; 68 years, tumour of liver.

You will observe that between the ages of 60 and 70 years, the chief causes of death are due to heart disease, disease of kidneys and cancer. Quite a remarkable showing.

Over seventy years the causes of deaths and ages were as follows: Apoplexy, age 76; Bright's Disease, age 71; senility age 96; blood infection and senility, age 83; apoplexy 82; bronchitis age 70; paralysis age 72; bronchitis and pneumonia age 77; apoplexy age 76; senility age 90; pneumonia 82; senility age 87; senile debility age 83; cancer age 80; old age 99 years; erysipelas age 78; heart disease age 82; senile debility 96 years; heart failure 86 years; pneumonia 72 years; la grippe 75 years; intestinal obstruction 76 years; senility 75 years; influenza 72 years; cerebral hemorrhage 73 years; age and bronchitis 90 years; grippe 78 years; old age 95 years; cancer of rectum 87 years; general breakdown 79 years; senility 85 years; senile debility 80 years; apoplexy 75 years; senility 83 years; old age 83 years; tumour in stomach 87 years; heart disease 74 years; old age 83 years; tumour in stomach 87 years; heart disease 74 years; carcinoma of kidney 78 years; senility 98 years; cerebral hemorrhage 78 years; myocarditis 82 years; old age 86 years; cancer of prostate 83 years; old age 90 years; paresis 80 years; rheumatism 72 years; senility 71 years; senility 97 years.

From childhood up to 60 years deaths were due to different causes. I find there were 30 cases of still and premature births, over ten per cent. of the entire number of deaths, and am unable to explain the reason of such a percentage.

We have reason for congratulation in connection with the preventible diseases. There were in all 144 cases reported with only two deaths.

Your Board and especially your Chairman has taken a special interest in endeavoring to establish a much needed Isolation Hospital. Different places were visited in conjunction with the Hospital Trust, with a view to ascertaining the workings of the institutions, the different plans and procuring plans for such as might be beneficial. It is to be hoped when the unrestful conditions of the times aright themselves, we may be able to carry out successfully our desired object.

Another progressive scheme is the endeavour to procure a "laboratory" for the city. This, if it can be financed, is a step in the right direction. You have already heard of its workings from our District Medical Officer, Dr. Wodehouse, so that I leave it with you and him to further decide its merits.

We had an outbreak of smallpox during the beginning of the year, which caused your officers a great deal of worry and anxiety as well as exposure, but by proper manipulation it was finally overcome. One death resulted therefrom. There was also an outbreak of measles and scarlet fever, but no deaths. There were fifteen cases of diphtheria with one death. Taking into consideration our population, we have reason to be thankful for the report of preventible diseases.

The members of the Board are to be congratulated upon their attendance at the meetings.

Respectfully submitted,

(Signed) J. A. ROBERTSON,

M. O. H.

Stratford, Ont., Dec. 11, 1920.

To the Chairman and Members of The Board of Health.

Gentlemen,—I beg to submit a report of some of the work of this Department for the past year.

The City has been thoroughly inspected as to sanitary conditions several times during the year and notices sent to all parties not observing sanitary regulations. Have inspected restaurants, fruit stores, groceries, bakeshops and butcher shops, also fish stores and all places where human food is dealt out, and usually found them in satisfactory condition. Inspected the livery and feed stables many times during the year, also private stables. I found in most cases they are well kept. Gave twelve permits to erect new stables, found a number of hen-houses not properly cleaned; also a few pigpens. In each case when notice was given, they complied with the regulations. I had many complaints come in during the year from different parts of the city—many of which were not well founded. In every case I looked into them, and where there was just grievance I had same adjusted. Had twelve dogs removed off the street which had been killed by autos.

We had 107 outside vaults abolished and modern improvements installed. Inspected the laundries frequently. There are great improvements in the sanitary conditions of those places. We have still a few tenement buildings that need remodelling so as to make them fit for habitation.

Building Inspector Dixon accompanied me to a number of houses where there was defective plumbing, and gave me great assistance in enforcing the changes necessary to put such houses in sanitary condition. I have some difficulty still in getting householders to get the necessary garbage cans. I hope in the near future that all householders will supply themselves with the necessary garbage and ash cans according to by-law. Almost every day during the summer I have made sanitary inspections in some part of the city, and am pleased to say that

conditions are improving as people are becoming more alive to the fact that the health of themselves and their neighbours depends on the care they take of their premises and the disposal of all refuse. In the matter of milk supply, I made many tests during the summer of samples taken from the various milk vendors and found them up to the standard. Also in company with the M. O. H. inspected the dairies and found the stables and milk cooling places in satisfactory condition. Many of the dairy men are still delivering their milk unbottled. I am of the impression that it would be more sanitary if delivered in bottles which had been properly sterilized.

During the year 144 cases of contagious disease were reported, and were as follows:

	Cases	Deaths
Diphtheria.....	15	1
Scarlet Fever.....	15	0
Measles.....	34	0
Mumps.....	4	0
Tuberculosis.....	3	3
Spinal Meningitis.....	1	0
Smallpox.....	61	1
Chickenpox.....	10	0

I used every precaution in my power to prevent the spread of disease and carried out the regulations of the Provincial Board of Health in regard to quarantining and disinfecting.

Miss Loney, our very efficient school nurse, reported a number of suspected cases of infectious diseases among the school children. The M. O. H. immediately investigated and thus prevented the spread of disease among the children.

I wish to acknowledge the help in my work I often received during the year, from our genial and energetic chairman.

Gentlemen, hoping that this report may meet with your approval, I have the honor to be,

Your faithful servant,

(Signed) THOS. DUNSEITH,

Sanitary Inspector.

ST. CATHARINES

St. Catharines, Ont., November 15th, 1920.

To the Chairman and Members of the Local Board of Health, of the City of St. Catharines.

Gentlemen,—I herewith submit my Annual Report from November 15th, 1919, to November 15th, 1920, inclusive.

Milk

There have been very few complaints about the milk this year and since monthly reports have been published in the paper, the milk supplied to the citizens has conformed more closely to the By-Law than ever before.

Garbage

Although there was a determined effort made by YOUR BOARD to have the citizens use a tightly covered metal receptacle, many have not purchased them. To keep down the fly scourge this is absolutely necessary.

Infectious Disease

Total number reported 1,367.

	No.	No. of Deaths
Scarlet Fever	32	0
Measles.....	150	0
Chickenpox.....	16	0
Whooping Cough.....	4	0
Typhoid Fever.....	8	3

Smallpox.....	65	0
Diphtheria.....	141	10
Mumps.....	40	0
Tuberculosis.....	16	16
Influenza.....	876	12
Venereal Disease.....	19	3
	<hr/> 1367	<hr/> 44

On investigation it was found that all Typhoid Fever cases were contracted outside the city.

Reporting of Diseases

It would appear that the physicians are not reporting Tuberculosis or Venereal Diseases, and some action should be taken to make this compulsory. I see no reason why every case should not be reported.

Flies

The citizens should know that the attic is a favorite place for flies to live during the winter, and if these were brushed off the ceiling now, it might save us considerable trouble next summer.

Sewers

Practically all streets are now sewered and this should help us greatly in doing away with the unsanitary and unsightly outside toilets.

Isolation Hospital

Many improvements have been made to the Isolation Hospital building, and while these will help greatly, still I do not feel that the present building is at all suitable for the work.

The matron has done her work in a very able manner. She is always obliging and very conscientious. Mr. Murray has looked after the ambulance calls very promptly.

During the winter months Lincoln Avenue must be kept open in order to allow the ambulance to reach the Isolation Hospital. The roadway from the N.S. & T. Railway tracks to the hospital door needs repairing as in the spring the mud is so deep that the motors cannot get through.

Market

There should be a much stricter inspection of meat exposed for sale on the market. During the summer the Sanitary Inspector as far as possible made all farmers keep the meat out of the sun and free from flies. I am firmly convinced that much of the meat would not be allowed to be sold, if properly inspected.

Public Health Nurse

The result of the work of the Public Health Nurse can be seen from the fact that practically no children died during this year from summer Diarrhoea. Miss Reid has done remarkably fine work, and is busy all the time. It seems to me that her work could be much more efficiently done if the Board of Health supplied a motor car for her use. The total number of calls she made during the year was 2,135, over 900 of these being made for Infant Welfare Work.

All of which is respectfully submitted.

D. V. CURREY,

Medical Officer of Health.

St. Catharines, November 15th, 1920.

To Chairman and Members of Board of Health.

Gentlemen,—Following is a report of work done by Sanitary Inspector for year, ending November 15th, 1920.

Total Number of Inspections.....	1454
Inspection of Privy Vaults.....	22
Inspection Unsanitary Houses and Premises.....	41

Inspection Overcrowded Houses.....	4
Inspection Laundries.....	20
Inspection Restaurants.....	30
Inspection Market.....	35
Inspection Junk Shops.....	22
Inspection Water on Lots.....	8
Inspection Water in Cellars.....	4
Inspection Offensive Odour and Blocked Sewers.....	17
Inspection Chickens on Premises.....	7
Inspection Hogs on Premises.....	12
Inspection Stables.....	10
Inspection Garbage Dumps.....	8
Inspection Dairies.....	40
Inspection Garbage Complaints.....	11
Inspection Regarding Relief Wanted.....	40
Inspection Regarding Relief Supplied.....	51
Notices served to provide Manure Receptacles.....	16
Notices served to dispose of Outside Toilets.....	10
Notices served to dispose of nuisances.....	29
Number of Animals Collected and Buried.....	200
Number of Unfounded Complaints.....	4

Quarantine and Disinfection

Number of Houses Placarded for Contagious Disease.....	331
Number of Houses Fumigated for Contagious Disease.....	342
Number of Houses Visited for Contagious Disease.....	30
Number Milk Samples tested for Sediment, Butter Fat, and Temp... ..	110

1454

All of which is respectfully submitted.

RICHARD BONHAM,

Sanitary Inspector.

St. Catharines, Ont., November 15th, 1920.

To the Chairman and Members of the Local Board of Health, of the City of St. Catharines.

Gentlemen,—I herewith submit my Annual Report from November 15th, 1919, to November 15th, 1920, inclusive.

Attached to this report is a list of deaths and their causes during the year, also a summary of their ages at the time of death.

I also submit a list of diseases classed as contagious as reported by the Medical Practitioners of the city, numbering 1,367 cases and 44 deaths.

The population as returned by the Assessment Commissioner for 1920, is 19,860.

The Sewer System has been further extended and a large number of sewer connections have been made. The city now has a good Sewerage System in nearly every portion of the city, which all helps to improve the health of the citizens.

All of which is respectfully submitted.

J. ALBERT PAY,

Secretary, Local Board of Health.

Births reported from November 15th, 1919 to November 15th, 1920:

Males	Females	Total
364	361	725

Increase of 180 over 1919.

Marriages 295, an increase of 82 over 1919.

Deaths 344, an increase of 26 over 1919.

Contagious Diseases Reported

	Cases	Deaths
Scarlet Fever.....	32	0
Measles.....	150	0
Smallpox.....	65	0

Diphtheria.....	141	10
Mumps.....	40	0
Chickenpox.....	16	0
Whooping Cough.....	4	0
Tuberculosis.....	16	16
Typhoid Fever.....	8	3
Influenza.....	876	12
Venereal Diseases.....	19	3
	<hr/> 1367	<hr/> 44

Number of Deaths and Causes From November 15th, 1919 to November 15th, 1920

Apoplexy.....	12	Infantile Paralysis.....	1
Abscess.....	3	Intra Abdominal Neoplasm.....	1
Accident.....	5	Inanition.....	3
Asthma.....	3	Ileo Ceolitis.....	1
Appendicitis.....	5	Int. Auto Intoxication.....	1
Angina Pectoris.....	1	Jaundice.....	2
Atitictosis.....	1	La Grippe.....	1
Arterio Sclerosis.....	3	Marasmus.....	6
Bronchitis.....	6	Meningitis.....	5
Bright's Disease.....	4	Myocarditis.....	6
Cardiac Failure.....	6	Nephritis.....	5
Cellulitis.....	1	Natural Causes.....	4
Convulsions.....	7	Non Assimilation Food.....	1
Cancer.....	4	Old Age.....	13
Cleft Palate.....	1	Obstruction of Bowels.....	2
Conjenital Defects.....	1	Peritonitis.....	4
Choleystitis.....	1	Paraplegia.....	1
Congestion of Lungs.....	1	Poison.....	4
Carcinoma.....	5	Premature Birth.....	21
Diabitis.....	4	Pneumonia.....	31
Dislocation of Vertebrae.....	1	Prostrate Gland.....	1
Dropped Dead.....	1	Paresis.....	1
Diarrhoea.....	3	Pulmonary Embolitis.....	2
Diphtheria.....	10	Paralysis.....	1
Epilepsy.....	2	Prolonged Labour.....	1
Electrocuted.....	3	Still born.....	35
Endocarditis.....	5	Sarcoma.....	2
Found Dead.....	1	Septicaemia.....	2
Fracture of Skull.....	3	Suicide.....	1
Gun Wounds.....	2	Syphilis.....	2
Gonorrhoea.....	1	Toxaemia.....	4
Gastric Ulcer.....	2	Tuberculosis.....	16
Goitre.....	1	Tumour.....	1
Gastritis.....	3	Typhoid Fever.....	4
Hemorrhage.....	6	Tonsolitis.....	4
Heart Disease.....	22	Uraemia.....	1
Hepatitis.....	1	Hernia.....	1
Influenza.....	12		
Indigestion.....	2	Total.....	344

Ages at Time of Death

Stillborn and Premature Births.....	56
From Birth to 6 Months.....	38
From 6 Months to 1 Year.....	7
From 1 Year to 2 Years.....	9
From 2 Years to 5 Years.....	8
From 5 Years to 10 Years.....	7
From 10 Years to 15 Years.....	10
From 15 Years to 20 Years.....	6
From 20 Years to 25 Years.....	11
From 25 Years to 30 Years.....	17
From 30 Years to 35 Years.....	16
From 35 Years to 40 Years.....	18
From 40 Years to 45 Years.....	17
From 45 Years to 50 Years.....	15

From 50 Years to 55 Years.....	9
From 55 Years to 60 Years.....	12
From 60 Years to 65 Years.....	14
From 65 Years to 70 Years.....	16
From 70 Years to 75 Years.....	16
From 75 Years to 80 Years.....	14
From 80 Years to 85 Years.....	15
From 85 Years to 90 Years.....	6
From 90 Years to 95 Years.....	5
From 95 Years to 100 Years.....	2

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Public Health Nurse's Annual Report

November 15th, 1919 to November 15th, 1920

Month	Infant We fare	Prenatal	Tubercular	Sickness	Miscell- aneous	Inspection	Influenza	Child Welfare	Dressings	Mothers' Meetings	Operations	Emerg- encies	Total
November....	34	10	2	55	196	6							303
December....	45	7	2	15	119	16							204
1920													
January.....	55	4		31	52								142
February.....	29	5		12	52		112						210
March.....	105	4		07	54	03	51						224
April.....	96	7	3	30	26			15					179
May.....	86	4	4	19	47	3		13	9	3	2		190
June.....	129	3		12	29	1		7		7			188
July.....	122	5		9	19	1		11		5		2	164
August.....	24	1		1	7								33
September....	40	4	1	6	11	1		6		1			70
October.....	87	9	4	13	16			13	3	5			150
November....	56	3	3		9			2	2	3			78
Totals.....	900	66	19	210	637	31	163	67	14	24	2	2	2135

(Sgd.) MISS MAUDE READ,

Civic Nurse.

WELLAND

Welland, Ont., December 1, 1920.

The Mayor and Council, Welland, Ont.

Gentlemen,—I beg leave to submit my annual report for the year 1920.

During the first ten months of the year there were 107 deaths, which includes all deaths occurring at the Hospital, many of whom were from outside points. This gives a death rate of about 13 per 1000, which is certainly a low death rate when we take into consideration the fact that epidemic diseases have been unusually prevalent throughout the whole Province, during the year.

In the month of February, influenza in a milder type than that occurring two years ago, was prevalent and caused 10 deaths. A widespread epidemic of measles occurred during the spring and early summer, 196 cases were reported to me, and I have no doubt many cases were not reported, as frequently no physician was called in attendance. Two deaths resulted from this disease.

There was one case of smallpox with recovery. 23 cases of scarlet fever were reported, with no deaths. 8 cases of diphtheria, with one death.

It is gratifying to be able to report that the city has been practically free from Typhoid Fever during the year. This is undoubtedly due to the efficient chlorination of the water as the canal water always shows intestinal bacteria. It is a matter of regret that the citizens

of Welland have such a poor quality of water for drinking purposes. The water in the canal is rendered so turbid and muddy by the passage of boats and the discharge of sewerage in the water by the boats, that the taste and appearance is not inviting. It is absolutely necessary to add considerable chlorine in order to render it safe. If the water were filtered, much less chlorine would be required. The only remedy is the projected pipe line and the Government should be urged to proceed with its construction without delay.

It is a matter of regret that our deathrate among infants under one year is still too high. Over thirty deaths being recorded for the ten months of the year. This is a deathrate of about 170 for each 1000 births. The remedy for this is the establishment of a baby clinic, and the appointment of a public health nurse, to instruct mothers in the proper care and feeding of infants. The Provincial Board have this year arranged for the appointment of District Health Nurses, whose duty is to organize the work of Public Health Nursing in the different cities and towns of the district. I trust that the citizens will interest themselves in the work of organizing and assisting in the work of baby welfare, and that the council will provide the necessary funds for carrying out the project. I am arranging with the Provincial Board to have the matter taken up in Welland as soon as possible, and hope that something may be done early next year.

The physicians of the city very generously joined with me in making a medical inspection of the school children free of charge this year. The result showed that a large number of the children were laboring under defects such as diseased tonsils, defects of sight and hearing, etc., preventing their proper physical and mental development. Cards were sent to the parents pointing out their defects and advising them to consult their physicians regarding them. I regret to say that from information furnished me by the school nurse in a large percentage of cases no action has been taken, towards remedying these defects. Where the question of expense stands in the way, arrangements should be made, so that the proper treatment may be available at the Hospital at the expense of the corporation as provided in the Public Health Act. No boy or girl should be handicapped by conditions preventing their proper physical and mental development which can be removed by proper treatment.

In the performance of my duties as Medical Officer of Health, I wish to acknowledge the assistance and hearty co-operation of the members of the Board of Health, and Mr. Geo. Lee, the Sanitary Inspector.

I have the honour to be,

Your obedient servant,

J. H. HOWELL,

M. O. H.

ESSEX BORDER MUNICIPALITIES

To the Chairman and Members of the Local Board of Health for the Essex Border Municipalities.

Gentlemen,—I beg to submit herewith my annual report for the calendar year of 1920. For the sake of brevity, work done has been reduced to tables as far as possible.

Section I.

Vital Statistics

The vital statistics which follow are for the urban municipalities of Ford, Walkerville, Windsor and Sandwich only. These municipalities represent between 90 and 95% of the population under the jurisdiction of the Local Board of Health, and it is believed that the figures presented will give a fair picture of the whole area.

In compiling the vital statistics which follow, the rule has been adopted to assign all births and deaths to the municipality in which the persons concerned habitually resided. This is necessary for the reason that the only two hospitals in Essex County are in Windsor, and as a result, many deaths and many births are registered in Windsor which do not properly belong there. Such registrations have been distributed to the proper municipalities. Certain deaths and births have been thrown out of the figures completely because the persons concerned were not residents of the Border municipalities at all. In a number of cases it was found that a single death had been registered in two different municipalities. Such errors have, of course, been corrected. Violent deaths as from automobile accidents, drinking wood alcohol, etc., have been assigned to the municipality in which the violence or the drinking of the poison occurred, irrespective of the customary place of residence of the person concerned.

Tables are submitted showing death rates with and without Influenza, because this disease only comes occasionally in the fatal epidemic form which swept the Border Cities in the early months of 1920.

The population figures shown were obtained from the various municipal officials.

Table I.

Deaths, 1920

	All Four Municipalities	Ford	Walker- ville	Windsor	Sandwich
Population.....	53,292	4500	7469	37,170	4153
Deaths (exclusive of still-births).....	753	62	86	528	77
Death rate per 1000 population.....	14.12	13.77	11.51	14.21	18.53
Deaths excluding Influenza.....	641	58	67	453	63
Death rate without Influenza per 1000 of population.....	12.02	12.88	8.97	12.18	15.17

Table II.

	All Four Municipalities	Ford	Walker- ville	Windsor	Sandwich
Population.....	53,292	4500	7469	37,170	4153
Births (exclusive of still births).....	1,534	143	207	1,051	133
Birth rate per 1000 of population.....	29	32	28	28	23

Table III.

Natural Increase 1920

	All Four Municipalities	Ford	Walker- ville	Windsor	Sandwich
Births (exclusive of still births).....	1534	143	207	1051	133
Deaths (exclusive of still births).....	753	62	86	528	77
Natural Increase.....	781	81	121	523	56

Table IV.

Causes of Death 1920 (International Classification)

International List Number	Disease	Total	Ford	Number of Deaths W'ville	Windsor	S'wich
1	Typhoid Fever.....	5	1	2	1	1
6	Measles.....	15	3	2	7	3
10	Scarlet Fever.....	7	2	1	3	4
8	Whooping Cough.....	5	1	1	2	1
9	Diphtheria.....	6	1	1	4	0
10	Influenza.....	112	4	19	75	14
18	Erysipelas.....	2	0	1	1	0
20	Septicaemia.....	11	1	1	8	1
28	Tuberculosis of lungs.....	32	4	2	23	3
29	Miliary Tuberculosis.....	1	0	0	1	0
30	Tubercular Meningitis.....	1	0	0	1	0
31	Tubercular Peritonitis.....	1	0	0	1	0
36	Rickets.....	1	0	0	1	0
39	Cancer of tongue.....	2	0	0	2	0
40	Cancer of Stomach and Liver.....	12	0	1	11	0
41	Cancer of Intestines.....	5	0	1	4	0
42	Cancer of Uterus.....	4	0	0	4	0
43	Cancer of Breast.....	1	0	0	1	0
45	Cancer of Other Organs.....	9	0	2	7	0
46	Tumour of brain.....	1	1	0	0	0

47 Acute Articular Rheumatism.....	5	1	2	2	0
48 Arthritis Deformans.....	1	0	0	0	1
50 Diabetes.....	4	0	0	4	0
51 Exophthalmic Goitre.....	1	0	0	1	0
52 Addison's Disease.....	1	0	0	1	0
54 Pernicious Anemia.....	6	0	1	5	0
56 Acute Alcoholism.....	1	0	0	1	0
61 Meningitis.....	5	0	0	5	0
63 Infantile Paralysis.....	1	1	0	0	0
64 Apoplexy.....	24	1	2	15	6
66 Paralysis.....	2	0	0	2	0
68 Insanity.....	1	0	0	0	1
69 Epilepsy.....	1	0	0	1	0
71 Convulsions of Infants.....	2	1	0	1	0
72 St. Vitus Dance (Chorea).....	1	0	0	1	0
76 Otitis Media.....	1	0	0	1	0
78 Acute Endocarditis.....	1	0	0	1	0
79 Organic Diseases of the Heart.....	50	4	5	35	6
80 Angina Pectoris.....	4	0	0	3	1
81 Arterio Sclerosis.....	16	0	2	14	0
82 Embolism and Thrombosis.....	5	0	1	3	1
83 Phlebitis.....	1	0	1	0	0
89 Acute Bronchitis.....	1	0	0	1	0
90 Chronic Bronchitis.....	3	0	0	3	0
91 Broncho-pneumonia.....	38	9	3	25	1
92 Lobar Pneumonia.....	51	4	8	36	3
93 Pleurisy.....	1	0	0	0	1
96 Asthma.....	5	1	0	4	0
102 Ulcer of Stomach (two years).....	1	1	0	0	0
104 Diarrhoea and Enteritis (under 7)....	37	6	0	25	6
105 Diarrhoea and Enteritis, over 2 yrs....	7	2	2	3	0
108 Appendicitis.....	8	1	0	6	1
109 Intestinal Obstruction.....	4	0	2	2	0
111 Acute yellow atrophy of liver.....	1	0	0	1	0
113 Grrrhosis of liver.....	2	0	0	2	0
114 Gall Stones.....	1	0	0	1	0
117 Peritonitis (non-puerperal).....	1	0	0	1	0
119 Acute nephritis.....	5	2	0	2	1
120 Chronic Nephritis (Bright's Disease) ..	23	1	2	18	2
126 Disease of the Prostate.....	2	0	0	2	0
131 Cyst of the ovary.....	3	0	0	3	0
134 Miscarriage.....	4	0	0	3	1
135 Puerperal hemorrhage.....	3	2	0	1	0
136 Difficult Labour.....	2	0	0	2	0
138 Eclampsia.....	4	0	1	3	0
142 Gangrene.....	2	0	1	0	1
150 Congenital Malformations.....	7	0	0	7	0
151 Congenital debilities.....	68	2	6	54	6
152 Diseases of new born.....	17	2	1	12	2
153 Lack of Care.....	2	0	0	2	0
154 Senility (old age).....	32	1	2	27	2
155 Suicide by poison.....	1	0	0	0	1
159 Suicide by shooting.....	1	0	0	1	0
165 Accidental poisoning (wood alcohol 3).....	4	0	0	2	2
167 Burns and scalds.....	7	0	2	4	1
169 Drowning.....	2	0	1	0	1
170 Death by shooting (not suicide).....	4	1	0	2	1
172 Killed by fall.....	1	0	0	1	0
174 Injured by machine (industrial).....	2	0	1	1	0
175 Automobile accidents.....	13	1	6	5	1
Steam railway accidents.....	2	0	0	2	0
Street car accidents.....	1	0	0	1	0
181 Electricity.....	2	0	0	2	0
185 Fractures (cause not given).....	2	0	0	2	0
189 Cause of death not known.....	6	0	0	6	0
Total deaths exclusive of still births....	753	62	86	528	77
Still births.....	69	6	9	51	3

Table V.

Deaths by Ages

Ages	Total	Ford	W'ville	Windsor	Sandwich
Under 1 month (94).....		9)	6)	72)	7)
1 month to 12 (76).....	170	11)20	6)12	45)117	14)21
1 year.....	32	8	4	19	1
2.....	3	1	0	2	0
3.....	6	0	3	3	0
4.....	6	1	0	4	1
5.....	8	1	0	4	3
6.....	8	0	2	4	2
7.....	8	2	2	3	0
8.....	7	1	1	4	1
9.....	2	0	0	2	0
10.....	3	1	1	1	0
11.....	1	1	0	0	0
12.....	2	0	0	2	0
13.....	5	2	1	1	1
14.....	9	0	1	7	1
15.....	6	0	0	3	3
16.....	2	0	0	1	1
17.....	1	0	0	1	0
18.....	6	0	0	4	2
19.....	8	1	1	6	0
20.....	4	0	1	3	0
21.....	7	0	1	6	0
22.....	5	0	1	4	0
23.....	9	0	0	9	0
24.....	13	3	0	9	1
25.....	14	1	3	9	1
26.....	10	1	1	7	1
27.....	12	0	1	8	3
28.....	9	2	2	5	0
29.....	7	0	0	6	1
30.....	8	0	1	5	2
31.....	11	0	2	7	2
32.....	9	2	1	6	0
33.....	6	0	2	4	0
34.....	12	0	0	10	2
35.....	5	2	0	3	0
36.....	8	0	0	8	0
37.....	7	1	0	6	0
38.....	4	1	1	2	0
39.....	4	1	0	2	1
40.....	8	0	2	5	1
41.....	2	1	0	1	0
42.....	5	0	0	4	1
43.....	6	0	1	3	2
44.....	2	0	1	1	0
45.....	6	0	1	5	0
46.....	2	0	0	2	0
47.....	5	0	0	3	2
48.....	4	0	2	2	0
49.....	1	0	0	1	0
50.....	8	0	0	7	1
51.....	8	0	1	6	1
52.....	3	0	1	1	1
53.....	5	3	1	1	0
54.....	3	0	1	2	0
55.....	5	0	0	5	0
56.....	5	0	2	3	0
57.....	4	0	0	4	0
58.....	8	0	1	7	0
59.....	7	0	1	5	1
60.....	5	0	2	3	0
61.....	3	0	1	2	0
62.....	11	0	2	8	1

63.....	9	0	2	7	0
64.....	6	0	1	5	0
65.....	13	0	4	8	1
66.....	7	0	0	6	1
67.....	7	0	0	6	1
68.....	6	0	1	5	0
69.....	9	0	3	4	2
70.....	7	0	1	6	0
71.....	6	1	1	4	0
72.....	12	0	2	9	1
73.....	8	0	2	5	1
74.....	5	0	0	5	0
75.....	8	0	0	8	0
76.....	6	0	0	6	0
77.....	4	0	0	4	0
78.....	6	0	0	4	2
79.....	3	1	1	1	0
80.....	6	0	0	5	1
Over 80.....	42	2	2	34	1
Age unknown.....	11	1	1	8	4
	<hr/> 753	<hr/> 62	<hr/> 86	<hr/> 528	<hr/> 77

Table VI.

Deaths Under 1 Year by Municipalities

	All Four Municipalities	Ford	Walker- ville	Windsor	Sand- wich
Living births.....	1534	143	207	1051	133
Deaths under 1 year of age.....	170	20	12	117	21
Deaths under 1 year of age per 1000 births.....	111	140	58	111	158

Section 2

Communicable Diseases

Table VII.

	Cases Reported	Deaths
Typhoid Fever.....	16	5
Measles.....	435	15
Scarlet Fever.....	186	10
Whooping Cough.....	11	5
Diphtheria.....	259	6
Influenza.....	5000 (estimated)	112
Smallpox.....	9	0
Chickenpox.....	49	0
German Measles.....	16	0
Mumps.....	8	0
Infantile Paralysis.....	3	1
Gonorrhea.....	115)	
Syphilis.....	37) 6 months only.	
Chancroid.....	4)	
Tuberculosis.....	125	35

Includes all cases known to reside in the Border Cities in 1920 whether reported in 1920 or previously.

Typhoid Fever—16 cases were reported with 5 deaths.

Probable sources of infections were found to be as follows:—

Came to Border Cities already ill.....	2
Acquired by contact with recently recovered Michigan case.....	1
Acquired through nursing of Typhoid case.....	1
Ojibway well water.....	1
Drinking Detroit River water, direct from the river.....	3
Michigan Central water supply.....	2
Sources of infection undetermined.....	6
Total.....	<hr/> 16

Measles—There were 435 cases reported in with 15 deaths. Of the 15 deaths, 10 were in babies under one year of age.

Scarlet Fever—186 cases were reported, with 10 deaths. 7 deaths were in children under 5 years. 1 was in a child of 14, and 2 were adults.

Whooping Cough—11 cases were reported with 5 deaths. All of the deaths were in children of one year or younger. Obviously many cases were not reported.

Diphtheria—259 cases were reported, with 6 deaths. 4 of the deaths were in children 5 years of age or younger, and of the 2 remaining cases, one was a child of 8 years and one a child of 12.

Smallpox—Only 9 cases of Smallpox were reported and there were no deaths. The disease was six or seven times as prevalent in Detroit in proportion to population as in the Border Cities. Our comparative freedom from the disease is undoubtedly due to the relatively well-vaccinated condition of our population. All our nine cases were in persons who had never been successfully vaccinated at any time in their lives. The sources of infection were as follows:

Persons who picked up the infection in trips to outside points (Toronto 2, Essex 1).....	3
New arrivals who were incubating the disease when they came here.....	3
Contracted the disease from persons in the preceding groups.....	2
Likely contracted in Detroit, where the patient conducted a business....	1
Total.....	9

Influenza—In January and February the Border Cities and Detroit, in common with many other cities were swept with an epidemic of influenza. The first cases were on January 19th, and the peak of the epidemic was reached nine days later. It is estimated that there were in the neighborhood of 5000 cases in the Border Cities. This is strictly an estimate, as all our doctors were working night and day attending the sick, and had no time to report their cases to the Health Department.

The deaths numbered 112, the peak of the mortality being on Feb. 2nd. An analysis of these 112 deaths shows that 3-4 of all the deaths were in persons in the prime of life. There were 10 deaths in children under school age, 2 deaths in school children, and the remaining 100 deaths were in persons over the school age. If the deaths from Influenza are arranged by ages in five year periods, the three periods showing the greatest mortality by far are the ages from 21 to 25, 26 to 30, and 31 to 35.

From a consideration of the statistics and from the experience of attending physicians, it is plain that the person who died from Influenza was he who kept on his feet too long, or got up too soon after the illness against medical advice.

In connection with communicable diseases, a number of conditions require special mention.

The general public look on measles as a non-dangerous disease. As a matter of fact, Measles killed more persons in the Border Cities in 1920 than Scarlet Fever or Diphtheria or Typhoid, or any other of the communicable diseases except Influenza and Tuberculosis.

Another fact that is not sufficiently understood, is that the common infectious diseases of childhood are much more fatal in babies and children under 5 years than in older children. Out of 15 deaths from Measles, 10 were in babies under one year; out of 10 Scarlet Fever deaths, 7 were in children under 5 years; all the 5 Whooping Cough deaths were babies under one year; 4 out of the 6 diphtheria deaths were in children under 5 years. Parents should protect these younger children above all others, from infectious diseases. If one of the older children has suspicious symptoms, keep him away from the baby from the very beginning. If it turns out that the older child has an infectious disease, he will probably come through all right, and if the baby gets it, there is a great deal more doubt about him.

One of the great difficulties in controlling communicable disease here and elsewhere, is to get all cases promptly into quarantine. There is every reason to believe that either through carelessness, ignorance or intention on the part of the parents, many cases of infectious diseases are not seen by doctors and not reported to the Board of Health. Such hidden and missed cases are a big factor in the spread of communicable disease.

It should be impressed on parents that whether a doctor is called or not, the head of a family is required by law to notify the Board of Health if he has any reason to suspect that he has any infectious disease in his household.

Medical school inspection leads to the discovery of many infectious cases that would otherwise not come to light and any extension of the system of school inspection would be of material assistance.

Finally the danger of hidden and missed cases may be combated by education of the public through the press and by inexpensive, simply-worded booklets giving the main facts about infectious diseases. Few people will in cold blood hide infectious disease if they know the seriousness of what they are doing.

The final condition that requires mention in connection with infectious disease is the serious disability we labour under, in having no isolation hospital.

Section 3

Sanitation. It is the policy of the Department not to wait for complaints of nuisances to be sent in by citizens, but to keep the district under sanitary patrol at all times.

That this is good policy is indicated by the fact that for every nuisance complained of by a citizen, six others were discovered and dealt with by our inspectors direct.

Table VIII.

Complaints by citizens.....	434
Nuisances discovered (without complaint by citizens).....	2811
Initial inspections.....	3245
Reinspections.....	5547
Total inspections.....	8792
Written notices.....	569
Abatements.....	2295
Police court cases.....	57

The majority of the nuisances dealt with have their origin in two conditions, both of which could be dealt with for the future at least, by appropriate action on the part of the Municipal councils.

The first of these conditions has to do with garbage collection. While many citizens fail to do their part in wrapping garbage and providing proper cans, the municipalities give an excuse for this private neglect by failing to provide a regular and sufficiently frequent collection.

To keep a city clean, garbage must be collected regularly on set days in the various districts and the frequency of the collection must be twice a week the year round in residential districts, and daily in the business section. This is the accepted standard worked out by experience in many places. Not one of the Border Municipalities provides a collection system that fully meets this standard and as a result, numerous nuisances come into existence—the primary cause of which lies in the failure of the Municipality to do its part.

The municipal action necessary to correct the above conditions consists of the provisions of an adequate collection system, and when this has been done, the establishment of a system of inspection that will see that each citizen puts the wastes of his household out for collection in proper shape. Such an inspection or law enforcement system is best handled by the officials in charge of collection for obvious reasons. In most cities only the occasional case of the obstreperous die-hard citizen who obstinately refuses to do what everybody else does, is dealt with by the Board of Health. All the minor offenses are dealt with by the collection officials.

The second great cause of unsanitary conditions has to do with housing. As a legacy from the past, there are in the Border Cities numerous tumble-down buildings, dignified by the title of houses, but barely fit for human habitation. Many of these buildings have no cellars or basements but are built on posts and while water and sanitary conveniences have in many instances been installed, later on in the original ancient buildings, these services are constantly freezing up, are of obsolete type and are out of commission for long periods. Some of these so-called houses do not face on streets, but are on alleys behind other houses. Many of them were never originally intended for houses, but are old barns and similar structures converted in an unsatisfactory fashion into dwelling houses. Incidentally, some of the worst profiteering in the whole Border goes on in connection with these tumble-down dwellings, and is directed against that part of the population least able to bear oppression of this kind. These places are exceedingly hard to deal with. Once they are up and occupied, it is hard to get rid of them, but there is no excuse for perpetuating this condition by allowing the erection of shacks and other unsuitable structures that will in time degenerate into the same type of dwelling that is objected to. It would seem to be the plain duty of each municipality to regulate all new buildings and see that they come up to certain minimum standards.

No permit should be issued for the construction of garages or other outbuildings or alleys, if they cut off access to the alley from the front of the lot.

Every house facing on a sewered street should have modern plumbing installed and connection made to the sewer at the time the house is built. If the house is not good enough to put modern plumbing into, its erection should be forbidden.

In the case of a house erected on a street without a sewer, it should be a requirement that space be provided in the building for modern plumbing so that when a sewer is laid on the street, the necessary fixtures can be put in without serious structural changes or additions. This is necessary, because while the Health Act provides that in certain cases plumbing may be put into a house at the expense of the municipality, and the money recovered in the taxes over a period of years, this does not apply to additions to the dwelling to house the fixtures, and this is often a serious item.

In the case of apartment houses, it should be provided that a certain percentage of the area of the lot be left free of buildings.

The distinction between tenement and apartment houses is that in a tenement house separate sanitary conveniences are not provided for each apartment. No permit should be issued for the erection of a tenement house, or for the conversion of an existing building into a tenement house.

From the standpoint of the Board of Health, the foregoing are the most important points to cover in municipal building supervision.

Unless these two subjects, garbage collection and regulation of new buildings have the most serious consideration of the municipal authorities, the efforts of the Board of Health in matters of sanitation must largely fail. It is of doubtful value to abate individual nuisances if no attention is paid to the sources from which the nuisances originate.

The sanitary excellence and good housing of Walkerville and its low death rate are unquestionably related, and there is no reasonable doubt that by appropriate action, the other border municipalities could attain to similar low mortalities.

Section 4

Table I X.

Food Places Under Inspection

	Sandwich East	Ford	Walker- ville	Wind- sor	Sand- wich	Sandwich West
Meats.....	1	11	11	62	6	3
Groceries.....	1	18	21	153	16	6
Bakeries.....	0	1	4	13	2	1
Fish.....	0	0	1	3	0	0
Restaurants.....	0	12	6	40	1	0
Markets.....	0	0	0	1	0	0
Dairies.....	5	0	1	5	0	1
Miscellaneous.....	2	3	6	20	3	1
Total.....	9	45	50	297	28	12

Total food places under inspection..... 441

Total food inspections..... 5142

Food condemned and destroyed as follows: 930 lbs. of beef, 20 lbs. pork, 17 turkeys, 10 chickens, 60 lbs. sausage, box of fish, sundry quantities of milk, head cheese, liver, eggs, fish, potatoes, canned vegetables, melons, grape fruit, strawberries, blueberries, peaches, plums, lemons and bananas.

In a general way it may be stated that an attempt is made to inspect all food establishments at least once a month.

The new restaurant By-Law which requires all restaurants to have licenses, which are issued by the Municipal Clerks only with the approval of the Board of Health, has been in operation during the whole of 1920, and has resulted in a tremendous improvement in the character of these places.

Very special attention has been given to the milk supply. Not only have the dairies, delivery wagons, etc., been inspected regularly, but samples of milk have been taken from each supply at least once a month, and analysed both bacteriologically and chemically. The highest bacterial count for the whole year was 960,000 per c.c. and the lowest 14,000 which is a very satisfactory showing. The average butter fat for the year was 3.65%. This also is entirely satisfactory.

Our Child Welfare clinics are another source of information on the milk supply. A large number of artificially fed babies attend these clinics and our usual procedure is to put these children on modified cow's milk formulae. Probably every commercial milk supply in the Border Cities is covered in this way, and since the majority of babies have done very well indeed, it is fair to assume that the various milk supplies are satisfactory from the standpoint of actual feedings.

All things considered, it may be safely stated that our local milk supply will, compare favorably with that of any city in Ontario.

Section 5

Laboratories

The Laboratory examinations made for physicians and for departmental purposes are shown in the following table:

Table XII.

Laboratory examinations for Diphtheria.....	1359
Laboratory examinations for Tuberculosis.....	215

Laboratory examinations for Typhoid (Widals).....	7
Laboratory examinations for Gonorrhea.....	312
Laboratory examinations for Syphilis (St. Pall).....	17
Laboratory examinations of Water (Bact).....	770
Laboratory examinations for Milk (Bacteriological).....	122
Laboratory examinations of Milk (Chemical).....	191
Total	2993

Biological Products

Diphtheria antitoxin, tetanus antitoxin and anti meningitis serum, smallpox vaccine and various other biological products have been properly stored in the laboratory refrigerator and supplied to physicians as needed.

The diphtheria antitoxin handed out in this way during 1920 amounted to 10,930 M. units. Bought in the open market, the materials mentioned above would have cost the physicians of the Border Cities and in turn their patients, in the neighborhood of \$10,000, but as a result of the progressive policy of the Provincial Board of Health, these materials cost us nothing except express charges and a small charge for containers.

Section 6

Child Welfare

To the parents of every baby whose birth is registered, the Board of Health sends the booklet on "The Care of the Baby" put out by the Provincial Board of Health, and at the same time issues an invitation to attend one of our Child Welfare Clinics.

The first Child Welfare clinic was held on June 9th, 1920 and it was the intention at that time to hold but one clinic each week. From the very beginning the attendance at these clinics became so great that it was plain that one clinic was not sufficient. Two clinics were therefore held each week commencing early in July—the Wednesday clinic for the district east of Ouellette Ave., and the Friday clinic for the district west of Ouellette Ave.

The attendance at the Child Welfare Clinics for the six months they were held in 1920 numbered 530.

Probably 90% of the work of the clinic has to do with the feeding of babies, and under this heading the clinic has dealt with cases of rickets, tetany, coeliac disease, malnutrition, constipation, diarrhoea, and finally perfectly well babies where advice is sought as to weaning, changes of diet, etc.

About 10% of the children are brought to the clinic for a diagnosis of some obscure condition or for advice as to whether a certain operation is advisable. In such cases, the diagnosis is made and the child referred back to the family physician or a specialist, or a hospital as the case may require.

In this group the clinic has dealt with cases of otitis media, tonsils, and adenoids requiring operation, mental deficiency, phlorospasm, congenital dislocation of the hip, sarcoma of the femur, congenital cataracts, Hirschsprung's disease (megacolon) and phimosis.

As evidence of the good work the clinic is doing in promoting the proper care of the baby and of the interest the clinics have aroused, it may be stated that babies have been brought in to the clinic from Maidstone, Amherstburg and Tecumseh. While these places are entirely outside our district, the added expense of looking after these babies is practically nothing, and we have been very glad to extend the clinic facilities to them.

Dr. Geo. E. White, who specializes in infant feeding and the diseases of children, has been in charge of the child welfare clinics from their inception, and the thanks of the Board are due him for the very efficient way in which the clinics have been conducted.

Re Extension of Child Welfare Clinic

From Table 6, Section 1 of this report, it will be seen that the death rate in children under 1 year of age is particularly high in Ford and Sandwich. Coupled with this condition is the fact that the Child Welfare Clinics in Windsor have not been well attended by Ford and Sandwich babies—no doubt on account of the difficulty of coming so great a distance on the street car.

It is clear that Child Welfare Clinics should be held in both Ford and Sandwich, and the M.O.H. proposes with the consent of the Board, to go ahead with the necessary arrangements.

Section 7

Tuberculosis

In April, 1920, the sanitarium at Union-on-the-Lake, established by the Essex County Health Association, was burned to the ground. This calamity has very seriously complicated the tuberculosis situation. At no time have we had sufficient sanitarium accommodation in the

Province of Ontario, and with the destruction by fire of the local sanitarium, and of a considerable part of the Muskoka Free Hospital for Consumptives at Gravenhurst, the situation has become very serious indeed. To make matters worse, the United States during the year, amended their immigration laws so that in practical terms it is now impossible for a person having Tuberculosis to enter the United States; the only exception to be a special permit from Washington.

The Sanitarium at London has helped us out a great deal many times by taking our most urgent cases of tuberculosis, but we have been compelled to keep the great majority of our cases at home and care for them as best we could.

The Local Board of Health has been careful to see that all necessary cases are kept under supervision with three ends in view: To insure the proper care of the patient, to insure the safety of other members of the household, and to insure the safety of the general public.

During the year 1920, 57 patients have been kept under supervision in this way to a greater or less extent. This work has involved 690 home visits. In addition to the above work, 44 chest examinations have been made at the clinics which are held weekly.

The thanks of the Board are due to Dr. Murray Flock, who has not only made the necessary clinic examinations, but has also made a number of visits for us to patients in their homes.

Section 8

Venereal Disease

There was taught us the importance of venereal diseases as a public health problem, and the Federal and Provincial Governments have taken active steps to combat these diseases. The Provincial Board of Health of Ontario offered assistance to the extent of \$1,000.00 towards equipment for a clinic for the treatment of venereal diseases (this to be paid the first year only) and \$1,000.00 towards the employment of a specialist, physician and a nurse.

The Local Board of Health for the Essex Border Municipalities decided to take advantage of this offer and a venereal disease clinic was equipped and has been in operation since early in July, 1920. 4 clinics are held each week, 2 for men and 2 for women—Dr. A. L. Poisson being the specialist in charge. 463 treatments were given during the 6 months the clinics were held in 1920.

The principal work of the clinic is the treatment of gonorrhea and syphilis in persons unable to pay the ordinary charges of a private physician, and who, if no clinics were available, would go without treatment and constitute a public menace.

Pre-Natal Work

The necessity for some form of pre-natal work on the part of the Local Board of Health will be plainly evident from the following tables and statements:

Stillbirths

Pregnancies.....	1603
Stillbirths.....	69 or 4.31%.

Deaths Under 1 Month

Living births.....	1544
Deaths under 1 month.....	94 or 6.13%.

The figures shown above would appear to justify the following conclusion:

Out of 1603 pregnancies, 163 or 10.16% were sufficiently unsatisfactory to end either in a still-birth or the birth of a weakly child which lived less than a month.

The experience of the pre natal clinic at the Toronto General Hospital and of other clinics would indicate that the figures given above can be very materially cut down. Just what form the activity of the Local Board of Health should take, the M.O.H. is not prepared at the present time to recommend. The Provincial Board of Health has recently organized a pre-natal division and it is expected that some assistance can be had from this source in the way of literature, and it would seem wise before laying down any plans, to consult with the Provincial authorities.

Water Supply

At present the water supplied to the various municipalities by the Windsor Municipal Water works and the Walkerville Water Co. is safeguarded in only one way, namely, chlorination.

That the chlorinating process has been well done during 1920 is indicated by the 770 bacteriological examinations which were made in our Laboratory during the year, and by the fact that Typhoid has been kept down to 16 cases. In 10 cases out of 16 we were able to satisfy ourselves that the Walkerville and Windsor water supplies were not the sources of infection. This, in view of the fact that it is always true that a certain proportion of Typhoid cases can not be traced, is very reassuring.

At the suggestion of the M.O.H., the Windsor Water Board during the year, purchased and put into commission a second liquid chloring machine to be kept in reserve in case of a breakdown. The Walkerville Water Co. has also put into commission a reserve machine.

The Michigan Central water supply has had a bad reputation as far as Typhoid is concerned for several years back, and at the suggestion of the M.O.H. certain measures have been taken to safeguard this supply. Since these protective measures have been taken, no further cases of Typhoid have occurred in Michigan Central employees.

The local situation in regard to water supply is briefly as follows:

During 1920 the water supplies have been kept safe by chlorination and the Windsor Board of Water Commissioners and the Walkerville Water Company and their employees are deserving of every credit for that accomplishment, but no water supply should be protected by a single procedure such as chlorination where the human element plays so large a part. Filtration of our water supplies is absolutely necessary—not only for the added safety, but because that is the only way to get a clean, clear water. Under the present arrangement, no water supply in the Border Cities is ever absolutely clear, and very frequently the water is exceedingly dirty.

Respectfully submitted,

F. ADAMS, M. O. H.

WOODSTOCK

To the Mayor and Aldermen of the City of Woodstock.

Gentlemen,—I beg to present herewith the report of the Medical Officer of Health, for the year 1920. This report you will observe covers the period from November 15th, 1919, to November 15th, 1920.

In presenting the report I would say that the Board of Health has endeavoured to carry on its work as economically as possible, but during the above period, Woodstock, as you know, was visited by an epidemic of smallpox causing undue expenditure. The expenses in connection with this outbreak amounted in all to approximately \$3,463.00. The Medical Officer of Health received in addition to his regular salary the sum of \$1,550.00, and the balance of \$1,913.00 was due to payments made for vaccination of the students, and for board, nursing, fuel etc., for quarantined patients, full particulars of which appear in the financial statements of the city for last year and this. Much of this expenditure, I submit, might have been avoided if the Isolation Hospital had been put in proper condition to receive patients; but through lack of proper facilities for handling patients at the inception of the epidemic an expensive system had to be used. The prevention of the spread of communicable diseases is one of the aims of the Board of Health, and whenever a person is known to have contracted smallpox, and others to have been exposed to the disease, provision should be made at once to isolate that person by placing the patient in the Isolation Hospital and quarantining those exposed. If this were done at the inception, the epidemic might be brought under immediate control. A special physician should be employed, and the Medical Officer of Health should be free to devote his time to his regular and ordinary duties. In this way the period of the outbreak would be so lessened as to cause greatly reduced expenses all round, as the number of people to be provided with necessities would not by any means be so great.

I would therefore recommend that proper facilities be provided at the Isolation Hospital for taking care of all patients at the inception of an outbreak, such as we had, of smallpox during the said period. \$10.00 a day paid to a physician for a short period of time would prevent \$10.00 a day being paid to the Medical Officer of Health for a lengthy period of time, and much of the above expense would thereby be avoided.

With reference to the milk furnished for consumption in the City, in addition to the tests, being made monthly as to butter fat and sediment, I would recommend that the specific gravity of the milk be also taken from time to time by the Medical Officer of Health.

The new sewer will in a short time be completed and this will facilitate doing away with all outside closets, and I would recommend that the Council pass a by-law enlarging the area for compulsory connection with the sewer, as this matter has been left in abeyance through lack of sewer facilities.

All of which is respectfully submitted.

F. L. PEARSON

Chairman of Board of Health.

Dated at Woodstock, December 27th, 1920.

To the Mayor and Aldermen of the City of Woodstock.

Gentlemen,—I hereby submit my annual report of the Health Department of the City of Woodstock for the year ending 15th November, 1920.

The population of the city by the last assessment is 10,333, being a fair increase over the preceding year.

The births recorded with the Registrar are 224, 109 being males and 115 females.

The deaths recorded are 172; being 84 males and 88 females. Included in this are deaths of non-residents who came to the city for medical treatment, and 18 still and premature births. Deducting these two items will give less than 13% per thousand.

Deaths occurring during the following periods:—

Stillborn and under 1 year.....	29	From 40 to 50 years.....	8
From 1 year to 5 years.....	7	From 50 to 60 years.....	12
From 5 years to 10 years.....	4	From 60 to 70 years.....	32
From 10 to 20 years.....	5	From 70 to 80 years.....	27
From 20 years to 30 years.....	7	From 80 to 90 years.....	23
From 30 years to 40 years.....	14	90 years or over.....	5

Number of Deaths and Respective Causes

Debility and Old age.....	16	Heart Disease.....	11
Bowel Obstruction.....	4	Myo-Carditis.....	14
Apoplexy.....	4	Cancer of Stomach.....	3
Arterial Sclerosis.....	10	Still and Premature Births.....	18
Uremic Poisoning.....	2	Diphtheria.....	6
Compression of Brain.....	2	Pneumonia.....	20
Tuberculosis.....	4	Influenza.....	3
Encephalitis Lethargica.....	3	Paralysis.....	2
Gangrene.....	2	Cancer.....	5
Pernicious Anaemia.....	3	Cerebral Hemorrhage.....	4
Cholera Infantum.....	2	Scirrhus of Liver.....	2
Suicide.....	2	Endocarditis.....	2
Erysipelas.....	2		

and one each of the following:—Gas Poisoning, Jaundice, Laryngitis, Angina Pectoris, Septicæmia, Cancer of Throat, Abscess of Brain, Bronchitis, Dropsy, Paresis, Rheumatism, Carcinoma, Addison's Disease, Indigestion, Spina Bifida, Cystitis, Nephritis, Cerebral Cerebritis, Bright's Disease, Cancer of Uterus, Rupture of Uterus, Cerebral Paresis, Pott's Disease, Congestion of Lungs, Accident and Epilepsy.

Communicable Diseases

During the early part of the year Smallpox was epidemic and during the months of March, April, May and June we had an epidemic of Measles.

We also had an unusually large number of cases of Diphtheria, principally in young children.

The diagram following will show the number of communicable diseases reported and the months in which they occurred; November 15-19—Nov. 15-20.

Diseases	1919		1920										Total	
	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.		November.
Chickenpox.....	7	5		1										14
Smallpox.....	10	8		3	1									30
Mumps.....		1		1	1			3			2			8
Diphtheria.....		11	5	4		2	2	3	1		1	1		30
Sleeping Sickness.....			1		1			1						3
Influenza.....			2											2
Scarlet Fever.....				6	2		1	1	1	1	9	2	1	25
Tuberculosis.....				1							1			2
Measles.....					13	25	196	39	3	1				277
Erysipelas.....					1									1
Typhoid.....									1		3	1		5
Whooping Cough.....												1		1
	17	25	17	16	19	28	199	47	6	2	16	5	1	398

Milk Supply

Members of the Board visited the byres and herds of the milk producers supplying the Woodstock Dairy, and found the herds in good condition, while some of the byres were not in a satisfactory state and lacking in proper conveniences for curing and caring for the milk.

While the majority have the butter fat up to the required standard, some are very often below.

As to sediment, the same may be said as to butter fat, and if more attention is not given to keeping sediment out of the milk, or when it gets in to have it immediately removed, the Board will have to take action and prohibit the sale of such milk.

The Woodstock Dairy filters and pasteurizes all milk coming into the Dairy.

Sanitation

The Board visited the slaughter houses of the Market Butchers and found most of them well kept, while some of them were unfit to be used.

On a second inspection (after Dr. McNally visited them), they were much improved.

The City Council, early in the year appointed Mr. Royal Brink, Inspector of Foods. He is proving himself a very efficient officer and justifies the appointment.

At the same time the City Council appointed Mr. W. B. Skinner, Sanitary Inspector, instead of Mr. George Robinson (retired). Mr. Skinner is active, energetic and doing very good work.

The garbage dumps have been kept in fairly good condition this year.

The installation of an incinerator to burn the garbage should engage the attention of the Council in the near future.

There have been fewer complaints this year than formerly as to the disposal of sewage.

There are too many earth closets still in use and I would suggest that the City By-Law be amended by extending the area in which outside closets shall be prohibited; said area to include streets supplied with sanitary sewers.

The Council has now in process of construction a system of sewage disposal of the most modern type and probably surpassing all in Western Ontario. Its capacity is such as to take care of the sewage of the City for many years to come.

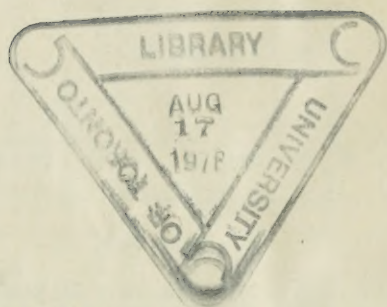
I thank the Chairman and members of the Board for their able and hearty co-operation in carrying on the work of the Board during the year.

Respectfully submitted,

ANDREW MACKAY,

M. O. H.

Dated at Woodstock, Ont., November 15, 1920.



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